Volume 3, Number 4 $3.50

Scholastic's Magazine for Today's Elementary Classrooms

TEACHING and computers®

Published by Scholastic Inc. January 1986

WRITE YOUR OWN MYSTERY STORIES

Use Spreadsheets in Math Class

Logo Activities for Primary Kids Only

Show off in class and you might get sent to the office.

We'd like to begin this ad with a short pop quiz.

Please circle the letter that best answers the following question:

Which would you rather win? (a) A trip to Washington, D.C. (b) An Apple® IIc personal computer system. (c) Free Apple software. (d) All of the above.

If you circled any of the above, we suggest you read all of the below.

Because we're going to explain how you or your students can win these and other prizes in the Apple Computer Club's National Merit Competition '86.

But first, a brief history lesson.

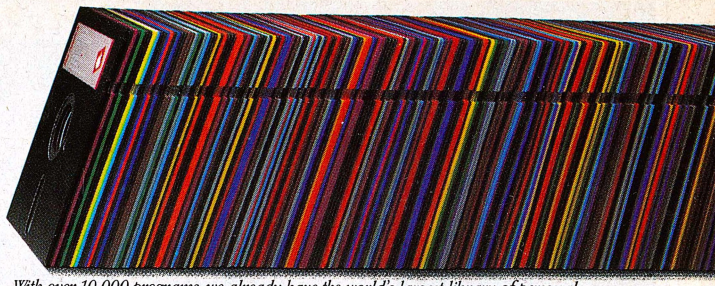
The Apple Computer Club program was founded in 1983 to help elementary and secondary students develop their interest and skills in computing. Since then, more than 15,000 Apple Computer Clubs have sprung up around the world.

Each year in the Merit Competition, we reward students and club advisors who develop innovative

divided according to grade level, so third graders aren't competing against a bunch of high school wiz kids.

Approximately 60 students and teachers will be selected as semifinalists on May 5, 1986. Then, on May 10, 1986, we will announce a runner-up and winner in each category.

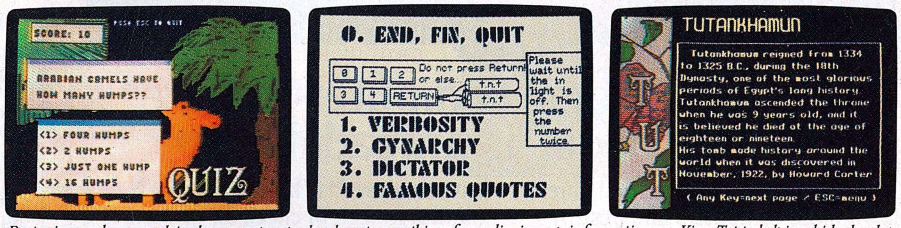
To give you an idea what it takes to win, here's a few examples of what's won.



With over 10,000 programs, we already have the world's largest library of personal computer software. Entering Competition '86 gives your club the chance to add to it.

teacher in Sewickley, Pennsylvania, integrated an Apple computer into her regular curriculum to teach kids about Egypt.

Now, if you'd like to see your name in this ad next year, this is what you need to do this year.



Past winners have used Apple computers to do almost everything, from digging up information on King Tut to helping kids develop dynamite vocabularies.

and useful applications for Apple personal computers in four different categories:

Community Service for club entries. Programming in BASIC, open to all students. Integrating Computers into the Curriculum, for teachers. And an anything-goes category we call Judges Choice.

Each category is divided according to grade level, so third graders aren't competing against a bunch of high school wiz kids.

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Along with a trip to the Capitol, winners of Competition '86 will receive free Apple computer systems, software and club accessories.

One of last year's Community Service winners was the Hershey High Computer Club of Hershey, Pennsylvania. They first raised money for the local Ronald McDonald House to buy a computer, then wrote original software which they donated to the House.

Computer Club News, the official club magazine, also sponsors contests throughout the year.

Adam Marsh and Stephen Mumford of Berlin, Maryland wrote a BASIC program that provided a humorous way for fellow students to study vocabulary for the SAT's.

And Mim Bizic, an elementary teacher in Sewickley, Pennsylvania, integrated an Apple computer into her regular curriculum to teach kids about Egypt.

Now, if you'd like to see your name in this ad next year, this is what you need to do this year.

Call 800-343-1425. If you're already an Apple Computer Club advisor, we'll give you more details about entering Competition '86. If you don't have a club at your school, we'll tell you how to start one.

But make sure you call soon, because the deadline for mailing entries is April 15th.

And in this case, tardiness means missing out on a trip to the office.

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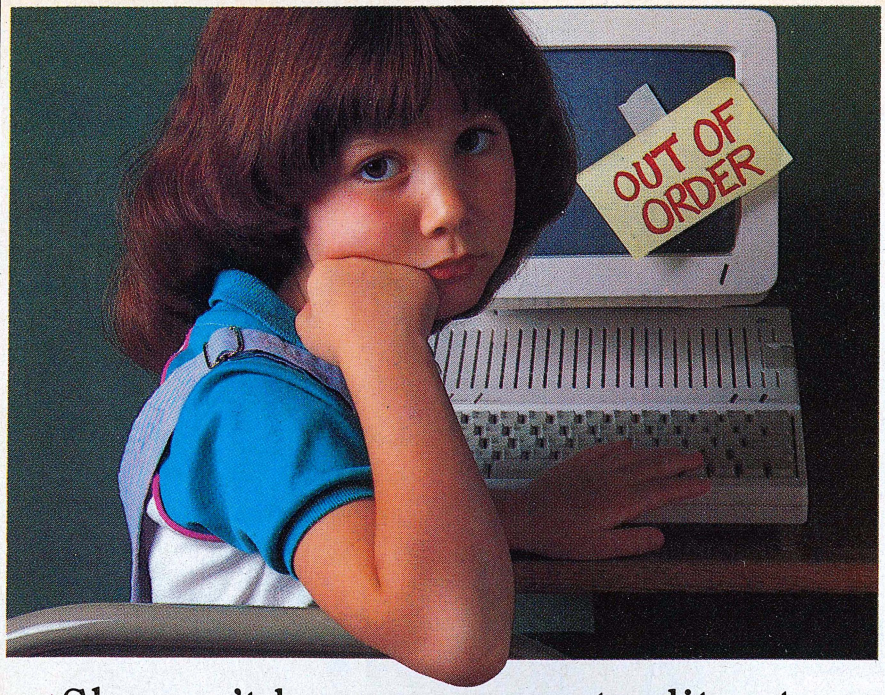

She can't become computer-literate if the "book" is unreadable.

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TEACHING and computers

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TEACHING and computers®

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Agatha Christie, move over! The word processing task cards in this teaching unit are guaranteed to turn kids into top-notch mystery writers.

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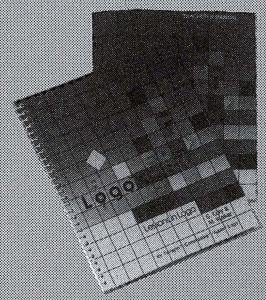

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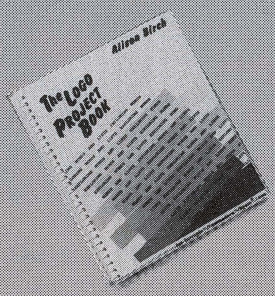

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UPDATE

NEWS FOR COMPUTER-USING TEACHERS

ARE VDTs UNHEALTHY?

Health risks cannot be directly attributed to the use of VDTs (video display terminals), according to a recent report by the House Subcommittee on Health and Safety. The study states that in particular, "there are no problems with regard to radiation exposure from VDTs."

The study included testimony from several physicians including ophthamologists, obstetricians, and gynecologists.

The findings concluded that the biggest problems with VDT use seem to be comfort-related (eye strain, stiff arms and backs, etc.). The report suggests users take frequent breaks to alleviate fatigue.

STORY WRITING CONTEST

If you own a piece of software called *Story Tree*, you can cultivate students' imaginations and writing skills by participating in the second annual *Story Tree* Writing Awards Contest. (*Story Tree*, published by Scholastic Inc., is a writing tool that helps kids write and organize interactive stories.)

Children enter the contest by submitting a printout of a story they have written with the help of *Story Tree*. Prizes for the contest will be awarded to the best written stories in two divisions: elementary (grades 4–6) and junior high (grades 7–9). The author of the grand prize-winning story in each of these divisions will receive an Apple computer. Also, each of the two winning authors' teachers will receive an Apple for classroom use. An additional 10 stories will be selected for honorable mention in each divison. These winners will each receive $100 worth of Scholastic software.

Entry deadline is April 30, 1986. For an entry form, write: Scholastic Software, *Story Tree* Contest, 730 Broadway, New York, NY 10003.

LESSONS FROM SPACE

Christa McAuliffe, scheduled to be the first teacher in space, will conduct live "lessons" from aboard the shuttle. The lessons will cover daily life in space, as well as explain much of the technology involved in running the shuttle, including a look at the onboard computers and controls.

The lessons will be broadcast across the country via direct satellite. In addition to the live broadcasts, McAuliffe will also take part in scientific demonstrations to be filmed for later distribution.

McAuliffe has already begun training for the flight of shuttle mission 51-L, set to launch no earlier than January 22, 1986.

Watch your local progam listings for specific times and channels for the live broadcasts. For more information on the programs, contact The National Aeronautics and Space Administration (NASA), Washington, D.C. 20546.

FREE DISK GUIDES

The Fuji Film company is offering a free educational booklet and poster, each designed to introduce computer users to proper care and use of the floppy disk.

The booklet, titled "The Floppy Disk Story," explains the inner workings of the floppy disk, explores the disk drive, and presents a glossary of common computer terms.

The colorful poster outlines the care and proper handling of the floppy disk. Both items may be obtained from Fuji Film Promotion Dept. P.O. Box 9870, Wethersfield, CT 06109. (Limit one booklet and poster per classroom.)

LEARNING KITS OFFERED WITH SOFTWARE

Learning Technologies is offering a free learning kit with the purchase of any one of its 20 new programs.

Each piece of software has its own kit, specially designed to enhance the skills represented in the software. The kits include a colorful poster highlighting the software's graphics, a customized lesson plan, three reproducible worksheets, a management chart to record student progress, and reproducible certificates to reward students who complete the activities. Contact: Learning Technologies, Inc., 4255 LBJ Freeway, Suite 131, Dallas, TX 75244. ■

DESIGNWARE® ANSWERS THE TOUGHEST QUESTIONS FACING TEACHERS TODAY.

How do you motivate students? Once they're interested, how do you find time to explain?

DesignWare educational software can help raise your students' interest and let you teach a wider range of material in greater depth. By challenging your students with imaginative interactive programs, DesignWare offers a fun way to review or learn new material with instant feedback and rewards. And since students can work independently with DesignWare programs, you have more time to spend with those students who need it most.

DesignWare offers 14 flexible learning programs covering math, grammar, spelling, science, geography, and more. Each one is easily adapted to your lesson plan– simply add your own materials or problems yourself. You can even adjust academic and game play difficulty levels independently to ensure that your students work to the best of their ability.

DesignWare software runs on Apple II family, IBM PC/PCjr, Commodore 64 and other popular computers. And all DesignWare programs come with telephone support and a 90-day warranty against defects.

Find out more about this uniquely adaptable approach which has already earned awards from *Learning Magazine, Parents' Choice, Electronic Learning* and *Family Computing.* Ask your local software retailer or school supplier about DesignWare programs, or write for our free catalog: DesignWare, Inc. Dept. E1, 185 Berry St., San Francisco, CA 94107. Short of doubling your hours, there's no more personal way to help your students learn.

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help launch it.

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Books for Computer-Using Writers

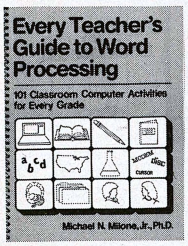
BY CANDY COLBORN

Many teachers think that now is the time for all good teachers to come to the keyboarding aid of their students. If you're one of these teachers, then you're sure to find the following books helpful.

COMPUTER KEYBOARDING FOR CHILDREN

Edward B. Fry's drill-and-practice keyboarding book, ***Computer Keyboarding For Children*** (Teachers College Press; 1984; $8.95), can be used by any child who knows the alphabet. In the introduction, students are told to type a five-line program into an Apple or a TRS-80 computer. This program makes the computer operate as a typewriter. The first 11 lessons introduce students to the characters on the keyboard. The remaining nine lessons use these characters to develop speed and proper typing rhythm, and to demonstrate letter writing formats. A built-in easel lets students stand the book next to the computer for easy reference.

EVERY TEACHER'S GUIDE TO WORD PROCESSING

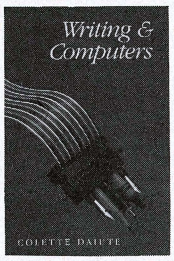


A wealth of classroom activities that use a word processor can be found in Michael Milone's ***Every Teacher's Guide to Word Processing*** (Prentice-Hall, Inc.; 1985; $19.95). In the first 10 chapters, Milone explains how you can use any word processing program to create electronic worksheets that drill language arts, math, social studies, science, and computer literacy. The last two chapters describe how word processing programs can help you manage your classroom and communicate with parents. Each activity is explained in a two-page format. Directions for each activity are printed on the left-hand page and an example of what the finished screen or printout might look like is displayed on the right-hand page. Teachers just beginning to explore word processing programs, as well as teachers wanting to extend their word processor's applications, will find this book invaluable.

COMPUTER TYPING MADE SIMPLE

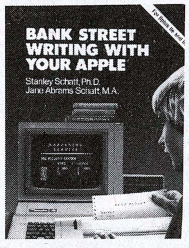
Computer Typing Made Simple (Doubleday; 1985; $4.95), by Betty and Warner Hutchinson, is a self-study guide that helps develop keyboarding and word processing skills. Although it is designed for adults, the text is bold and clear enough for intermediate students to read independently. Three or four keys are introduced and drilled in each chapter. The lessons teach the touch-typing system as well as how to use special computer functions effectively. Illustrations of the IBM PC are used throughout the book to highlight the keys under discussion. The final chapter discusses and illustrates other computer keyboards, including Apple, TRS-80, and KAYPRO.

WRITING AND COMPUTERS



Psycholinguist Colette Daiute presents a scholarly analysis of written electronic communication in ***Writing and Computers*** (Addison-Wesley; 1985; $16.95). The book is divided into four parts. The first part suggests a philosophy for using computers in the writing process. The second part examines the various ways in which the computer is used as a writing tool. The third section groups writers according to age and discusses specific computer applications for each group. The final section deals with assessing needs, setting up the appropriate computer environment, and suggesting ways word processors can be used to enhance writing. An extensive bibliography, a list of software resources, and a detailed glossary make this book a valuable addition to a professional library.

BANK STREET WRITING WITH YOUR APPLE



The most appealing feature of ***Bank Street Writing with Your Apple*** (Sybex; 1984; $9.95), by Stanley Schatt and Jane Abrams Schatt, is that it shows children how much fun writing can be. The first chapter introduces the mandatory word-processing software, *Bank Street Writer* (*BSW*). Subsequent chapters give directions on 20 different applications for *BSW*, such as starting a diary, establishing a mail order business, and charting family history. The final chapter, "*Bank Street Writer* for Parents," tells parents how they can use *BSW* with their children to help improve kids' writing skills. Helpful illustrations throughout the book demonstrate what the screen image should look like after each activity is completed.

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Addison-Wesley Publishing Co., Reading, MA 01867.
Doubleday, 245 Park Ave., New York, NY 10167.
Prentice-Hall, Englewood Cliffs, NJ 07632.
Sybex, 2344 Sixth St., Berkeley, CA 94710.
Teachers College Press, 1234 Amsterdam Ave., New York, NY 10027.

Candy Colborn is a media specialist at Cottonwood Creek Elementary School in Englewood, CO.

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3	$30 Discount Coupon + $9.95
4	$40 Discount Coupon + $0.00
5	$50 Discount Coupon: Get one package free and $10 toward a second!

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ASK THE EXPERTS

ANSWERS TO YOUR COMPUTER QUESTIONS

Every month in this column, experienced computer teachers and technical consultants from across the country offer advice about hardware, software, classroom management, philosophy, and other issues associated with educational computing. If you have a question, write to "Ask the Experts," *Teaching and Computers*, 730 Broadway, New York, NY 10003.

COMBATTING POWER SURGES

Q ***We have a computer lab at our school. Sometimes all of the machines in the lab suddenly stop working and we lose information stored in the computer's memory and valuable time. Is there anything we can do to avoid this?***

Paula Chambers
Rochester, NY

A Your lab could be experiencing power surges or "spikes." These are irregularities in the amount of power the building's electrical system supplies your computer.

Small power irregularities usually don't affect computer operations, but larger power surges can change data stored in your computer's memory and damage your equipment.

If this is a problem in your lab, you should connect the computers to a *surge protector* (a device that looks similar to a power strip and ensures unwavering voltage.)

Surge protectors come in a variety of models. Usually, the more expensive surge protectors handle higher wattages better and control power surges more quickly than low end protectors. Some perform additional functions like filtering out "noise" (any disturbance) on the power line that is picked up from other sources such as passing CB radio operators.

For very important applications, you can get an "uninterruptable power supply" that not only produces unwavering voltage like a surge protector, but functions as a source of power to your computer when your regular power supply fails.

Try using surge protectors with one or two computers in your lab as an experiment. The next time your machines stop working, check to see if the computers connected to the surge protectors are affected. If they still work, you should invest in surge protectors for all the computers in the lab.

ROLL THE PRESSES

Q ***Our class is planning to start a newspaper. Are there any software programs that can help us?***

Alan Andrews
Champaign, IL

A Our experts highly recommend *The Newsroom,* a program specifically designed for producing classroom newspapers. To create a newspaper with *The Newsroom,* kids first use the program's word processing capabilities to organize their thoughts and then translate them into newspaper articles. Next, using the program's library of clip art, children create graphics to accompany the articles. They then lay out the articles and their graphics in page format on the computer screen and print out their creations on any standard printer.

For early elementary classes, David Friday, media director for Palos East School in Palos Park, Illinois, recommends a program that is easier to use, but also combines graphics and text. Called *Bank Street Storybook,* the program allows students to create multi-page illustrated stories and print them on paper. Using a joystick or graphics tablet, students draw pictures on the screen. They use a built-in word processor to type words anywhere on the screen, and a standard printer to transfer their stories to paper.

WHICH MONITOR IS BEST?

Q ***I plan to use my classroom computer mostly for word processing and data base applications. What kind of monitor—monochrome or color—would be best?***

Gina Mandell
Menlo Park, CA

A For word processing and database programs that require an 80-column text display, technical consultant Lance Paavola recommends a monochrome monitor (one that displays text in only one color). Monochrome monitors are designed to display 80-column text, unlike composite (color) monitors which usually don't display 80 characters per line clearly.

Lance says a monochrome monitor is also your best bet for word processing and data base programs that are designed for a 40-column screen because the text display is usually sharper and easier to read.

In classrooms where both 80-column and color-dependent programs are used frequently, teachers often keep both types of monitors on hand. They could avoid this type of monitor switching, however, by investing in an RGB (red-green-blue) monitor. RGB monitors are one step beyond composite monitors in terms of technology. They offer superior color, sharpness, and an 80-column text display, but they cost considerably more than composite or monochrome monitors.

If you have Apple computers, a new breakthrough product, called ColorMonitor IIe for Apple IIes and ColorMonitor IIc for Apple IIcs, serves the same purpose and costs less. Available from Apple dealers, it's a composite (color) monitor that also displays 80-column text clearly. The suggested retail cost is $379.

RECOMMENDED SOFTWARE

The Newsroom
Computers: Apple II series; IBM PC; Commodore 64. PC version requires color graphics card
Price: $49.95
Source: Springboard Software, 7807 Creekridge Circle, Minneapolis, MN 55435; 612/944-3912

Bank Street StoryBook
Computers: Apple II series; Commodore 64,128; IBM PC, PCjr. Requires joystick or Koala Pad; PC version requires color graphics card
Price: $39.95
Source: Mindscape Software, 3444 Dundee Road, Northbrook, IL 60062; 312/480-7667 ■

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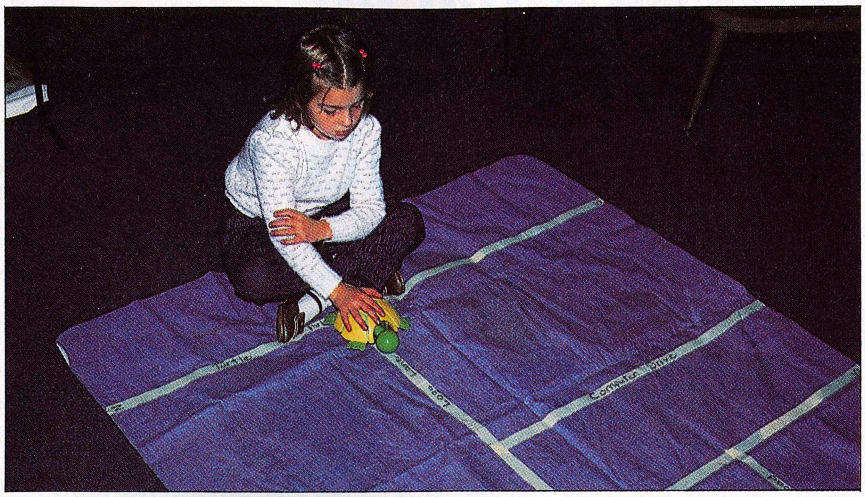
CLASSROOM HAPPENINGS

BY LESLI ROTENBERG



As part of a video lesson, this child acts out Logo commands on a floor map.

LOGO GOES VIDEO

Educators have used a variety of methods to teach Logo programming concepts to kids. Now students can learn how to manipulate the Logo turtle through yet another means of instruction—video.

Jo-Ann Anderson, a second grade teacher at Waterford-Halfmoon School in Albany, New York, has created five introductory Logo lessons on video tape. Supported by a grant from the Waterford-Halfmoon Board of Education, Jo-Ann taped the Logo lessons in a television studio at a local high school. Called *Have You Walked Your Turtle Today?,* the lessons include explanations of the Logo concepts covered, and step-by-step directions for manipulating the turtle on the computer screen. Worksheets accompany the lessons so students can practice what they learn.

Some of the lessons use a Logo floor map that Jo-Ann created from a plastic tablecloth. The map shows a mock city with streets such as "Turtle Parkway," "Disk Avenue," and "Logo Lane." On the video (and in the classroom), one child plays the turtle. The other students give directions to the "turtle" in the form of Logo commands, such as "Forward 5," "Right 90," and so on. The turtle walks to various locations on the map by following these commands.

The video lessons may soon be aired on a local cable television station. Jo-Ann also has plans to make them available to teachers across the country. For more information, contact Jo-Ann Anderson, Waterford Halfmoon School, 125 Middletown Road, Waterford, New York 12188; 518/237-5116.

STUDENTS DIAL DOW JONES

Of the following persons, who earns the most money in a year: the president of the United States, the president of General Motors, or tennis star Martina Navratilova? (Answer: Martina Navratilova.)

To find the answer to that and many other questions, fifth grade students at Brunswick Acres Elementary School in Middlesex, New Jersey, dial the Dow Jones Information Retrieval System, an on-line service that offers quick access to a wide range of up-to-date information. The students can access the service by typing a phone number and a special code number into their library's computer. The computer is connected by modem to the Dow Jones Information Retrieval System.

The Dow Jones service maintains 35 data bases. Aside from several financial data bases, these include an on-line encyclopedia, the full text of *The Wall Street Journal, The Washington Post, Peterson's College Guide,* World Report (a news wire service), a medical and drug reference, and weather and sports reports. There is also a data base that allows students to shop for merchandise on-line.

Brunswick Acres School is participating in a pilot project sponsored by Dow Jones to explore the use of its on-line service in schools.

"The Dow Jones service can be very useful to elementary schools," says librarian Joyce Sherman. Joyce has developed a series of exercises that use the service to teach students problem solving skills.

In one exercise based on Jules Verne's book *Around the World in 80 Days,* students plan an eight-stop trip around the world. They must consult a world map and the Official Airline Guide (one of the on-line data bases) to schedule flights between each of the cities on their trip. Students also use a weather data base to get forecasts for the cities they plan to visit.

Why use such a service to teach basic curricula? "Students can gather information more quickly with the service than with traditional research tools," Joyce says. Also, Joyce adds, children have to use higher level thinking skills to get what they need on the computer.

Four school districts are involved in the pilot project. Teachers from these districts have worked with Dow Jones to compile 25 lesson plans for using the service with students (some lessons are for elementary kids; others for high school students). The lesson plans will be published soon in a book titled *An Educator's Guide to Dow Jones News Retrieval* (price not yet determined). Dow Jones also plans to offer its retrieval service to schools at a special flat fee (rate still to be determined) instead of the hourly rate companies pay.

For more information about the Dow Jones retrieval service or teacher's guide, contact Hal Logan, Dow Jones and Company, P.O. Box 300, Princeton, NJ 08540; 609/452-2000 ext.3309. ■

Lesli Rotenberg is associate editor for *Teaching and Computers.*

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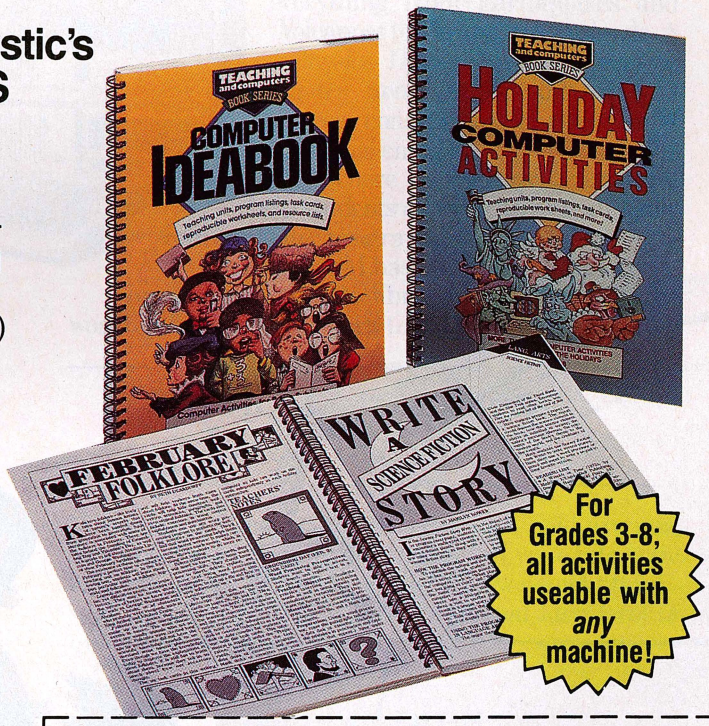

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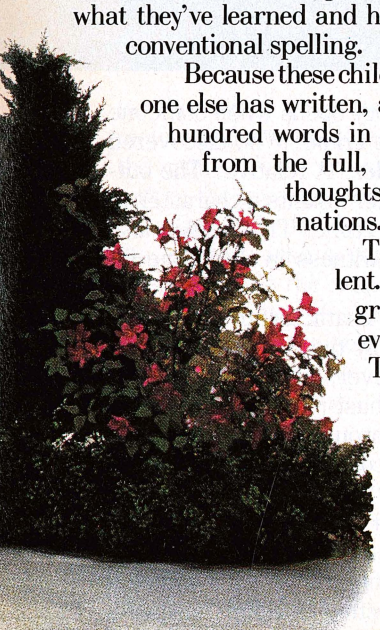

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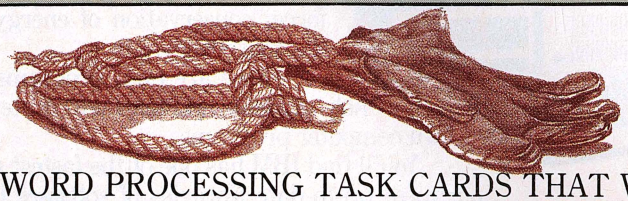
WRITE YOUR OWN ? ? ? Mystery Story



SIX WORD PROCESSING TASK CARDS THAT WILL TURN KIDS INTO MASTERFUL MYSTERY WRITERS.

BY BETH DEARDORFF

A murder has been committed in Boddy mansion. The victim, Mr. Boddy, is found abandoned in one of the rooms. Whodunit? How was it done? And where was it done? Was it Mrs. Peacock with a candlestick in the billiard room? Or was it Colonel Mustard with a lead pipe in the kitchen?

Those questions have puzzled players of Clue, the popular Parker Brothers game, for many years. Now a film version of the game, also called *Clue*, brings this mystery challenge to the screen. In the screen version, Clue enthusiasts will not only be able to uncover the "who," "how," and "where" of a Clue mystery, but the "why" (motive) behind it as well.

Clue isn't the only sleuth story at the box office. Another recently released film, *Young Sherlock Holmes*, traces the fictional roots of the friendship between the master detective, Holmes, and his ever-present sidekick, Dr. John Watson.

Why not capitalize on "sleuth fever" by introducing students to the art of writing mystery stories? The six task cards on the following pages take children step-by-step through the process of creating a mystery story on the computer. All you need to do is cut out the cards, boot up your word processing program, and put your young writers to work.

TEACH STUDENTS ABOUT MYSTERIES

A mystery story is a sophisticated type of storytelling based on the idea of secrets. In a mystery, one or more persons tries to uncover another's secret.

In most mysteries a crime has been committed. The crime may be people-oriented such as a murder, kidnapping, or mugging; or it may be object-oriented such as a theft or house break-in. The challenge in a mystery story is to find out who committed the crime (the culprit), and why (the motive).

In most mysteries the crime has been committed before the story begins. The story opens when someone discovers the crime. Who discovered it? A bystander? A relative? The butler? The writer invents a character to discover the crime. This person also serves as a witness in the crime investigation.

The next character to enter the story is usually the detective. Detectives are clever, shrewd, and intuitive. They must pay attention to details, sort through information, and draw valid conclusions. The detective's job is to find witnesses who have seen or heard something relevant to the crime.

Through interviews with witnesses, the detective develops suspects

Rick Barrick

for the crime. Suspects must have a motive and an opportunity to commit the crime. Clues are also major factors in the investigation.

In the end, the detective pursues the criminal, who is caught and confesses. That's the standard formula, although some of these elements vary from story to story. In general, most mysteries have a crime, setting, witnesses, clues, suspects, and a plot.

The difficult aspect of writing a mystery story is determining how much information to give the reader. Writers need to give readers enough information to keep their interest. At the same time, they must be careful not to rob the story of suspense by giving too much information at the beginning. Check out some mystery stories from the library (include selections from the Hardy boys, Nancy Drew, and Encyclopedia Brown mystery series). Encourage students to read at least one mystery story in preparation for this writing unit. After children have read their books, write the main elements of a mystery story on the board: Crime, Setting, Witnesses, Clues, Suspects, Plot. Ask students how the authors of the books they read introduced these elements into their stories. How did the authors make their stories suspenseful?

TEACHER'S GUIDE TO THE WORD PROCESSING TASK CARDS

The six task cards on the next few pages will help students develop their own mystery stories on a word processor. Any word processing program that can save, insert, delete, and move text can be used.

To prepare for the activities, photo copy and laminate the task cards on pages 19 and 21. Then review the teachers' directions on this page. The notes provide instructions for setting up data files that students need to use with the task cards. To set up the data files, boot up your word processing program, type in the data file exactly as it appears, and save it on a blank disk or cassette under its specified file name.

Place the task cards, word processing program, data disk or cassette, and some blank disks or cassettes in your computer center.

Before children begin work on the cards, be sure they know how to boot your word processing program into their computer, load a data file, and save information on a blank disk or cassette.

Students should complete the six cards in numerical order.

Task Card #1: Crime and Setting

Activity Description: Students invent a crime and a setting for their mystery story. They develop the setting by filling in the skeleton description below. (Some students may wish to develop their story setting from scratch rather than use the skeleton provided. That's fine, too.)

Preparation: Using a word processing program, type the crime and setting data file exactly as it appears below (blanks and all) onto your data disk or cassette. Save the material under the name SETTING.

CRIME AND SETTING DATA FILE

The Crime:

The crime committed in my mystery will be _____.

The Setting:

The _____ into the room had many _____ on it. The room was big with a worn red _____, two _____, and a battered _____. The frames on the wall held pictures of _____-looking _____ and

(continued)

_____. A huge old _____ sitting in the corner had _____ that looked like big yellow eyes staring at me. I felt a cold _____ coming across the _____. The place made me feel _____.

Task Card #2: Witnesses

Activity Description: Students create five witnesses for their story. They provide information about who each witness is as well as what each witness saw that might help solve the mystery.

Preparation: Using a word processing program, type five copies of the witness information below onto your data disk or cassette. Leave plenty of space for students to add information to the file. Save it under the file name WITNESS.

```
WITNESS DATA FILE
NAME:
OCCUPATION:
WHERE WITNESS WAS THAT DAY:
WHAT WITNESS SAW:
```

Task Card #3: Clues

Activity Description: Students create five clues that can be discovered at the scene of the crime.

Preparation: Using a word processing program, type the following Clue Data File exactly as it appears below. Save it under the file name CLUE.

```
CLUE DATA FILE
CLUE #1:
CLUE #2:
CLUE #3:
CLUE #4:
CLUE #5:
```

Task Card #4: Suspects

Activity Description: Students create five suspects for their stories.

Preparation: Using a word processing program, type five copies of the suspect form below. Leave plenty of space for students to fill in the "Description" and "Reasons for Suspicion" sections for each character. Save under the file name SUSPECT.

```
SUSPECT DATA FILE
NAME:
ADDRESS:
AGE:
OCCUPATION:
DESCRIPTION:

REASONS FOR SUSPICION:
```

Task Card #5: Plot Mix-up

Activity Description: After completing task cards 1–4, students will have stored on their data disk or cassette all the necessary ingredients for a good mystery. The next step is for them to organize these elements into a storyline or plot. It is important that these elements are organized in sequential order.

In this activity, students correct the sequence of events in the mixed-up plot of a fictious mystery story. The activity will help children determine how to sequence the elements in their own stories.

Preparation: Using a word processing program, type the information below. Save it under the file name MIX-UP. (The correct order for the sequence of events is C,F,A,D,G,B,E.)

```
MIX-UP DATA FILE
A. The detective is called to solve the mystery.
B. From clues and a witness's report, the detective figures out who committed the crime.
C. A crime is committed.
D. The detective searches for witnesses and clues.
E. The criminal is captured and confesses.
F. The criminal leaves the scene of the crime.
G. The detective lines up a number of suspects.
```

Task Card #6: Your Own Plot

Activity Description: Now it's time for students to write a plot for their own mystery story. The questions that appear on this card will help students order the events in their plots. Have kids answer the questions (using complete sentences) on the word processor. The answers will serve as their story's plot.

Preparation: Using a word processing program, type the questions below. Save them under the file name PLOT.

```
PLOT DATA FILE
A. What crime occurred?
B. How does the criminal get away?
C. Who solves the mystery?
D. What does your detective do first?
E. Whom does he or she suspect?
F. How does he or she figure out the mystery?
G. How is the criminal captured?
```

Once students have completed the six task card activities, they will have all the information they need to write their own mystery stories on the computer. Help kids make printouts of their six task card files. Tell them to refer to and incorporate information from these files (especially the PLOT file) as they create a first draft of their story on the word processor. Remind children to go back and edit their stories several times. Good writing is a thinking process that often requires rereading, rethinking, and rewriting.

Cut out and laminate the Mystery Task Cards on pages 19 and 20.

MYSTERY TASK 1 CARD

CRIME AND SETTING

Ask your teacher for the data disk or cassette that goes with this card. Load it and call up the file named SETTING.

Now follow these steps:

1. A crime has just been committed. Was it a kidnapping? A murder? A theft? You decide what the crime was and fill in your answer in the first blank that appears on your screen.

2. Now you need to develop a *setting* (where the story takes place). In a mystery story, a setting usually has some unusual details that add a hint of suspense to the story. For example, the room where the crime was committed might have a secret passageway to another room.

On the screen, you'll see the description of a setting that has many details left out. Use the INSERT command on your word processing program to fill in the blanks (missing details). This will give you a setting for your mystery story. Or, if you prefer, create your own paragraph about a setting and save it on your data disk.

MYSTERY TASK 2 CARD

WITNESSES

Ask your teacher for the data disk or cassette that goes with this card. Load it and call up the file named WITNESS.

You — detective I.M. Sly — have been called in to solve a mysterious crime. When you arrive, there are five witnesses to question. They didn't actually see the crime committed. Each saw someone coming or going from the scene on the day of the crime. Between the five of them, they saw everyone who was at the setting that day.

On the screen, you'll see a form to complete for each of the witnesses. Use the INSERT, DELETE, and MOVE commands to fill in the information. The sample at right shows how a completed form might look.

NAME: *Toby Smith*
OCCUPATION: *Butler*
WHERE WITNESS WAS THAT DAY: *Working at Mrs. O's mansion, often in the kitchen.*
WHAT WITNESS SAW: *At 11:35, a delivery man brought a package to Mrs. O. He was not the usual delivery man, and insisted on giving the package to Mrs. O himself.*

MYSTERY TASK 3 CARD

CLUES

Ask your teacher for the data disk or cassette that goes with this card. Load it and call up the file named CLUES.

At the scene of the crime, there should be a number of clues that will help solve your mystery.

Clues may include (1) objects that are not in their usual places, such as a chair in front of a door or an open book on the floor; (2) objects that would not usually be in a particular place, such as a smoking pipe or a lighter in a house where no one smokes; or (3) missing objects, such as a missing king from a chess set.

On the screen, you'll see space to describe five clues and explain why each one is out of place. Use the INSERT, DELETE, and MOVE commands to fill in information about each.

Suzanne H. Sullivan

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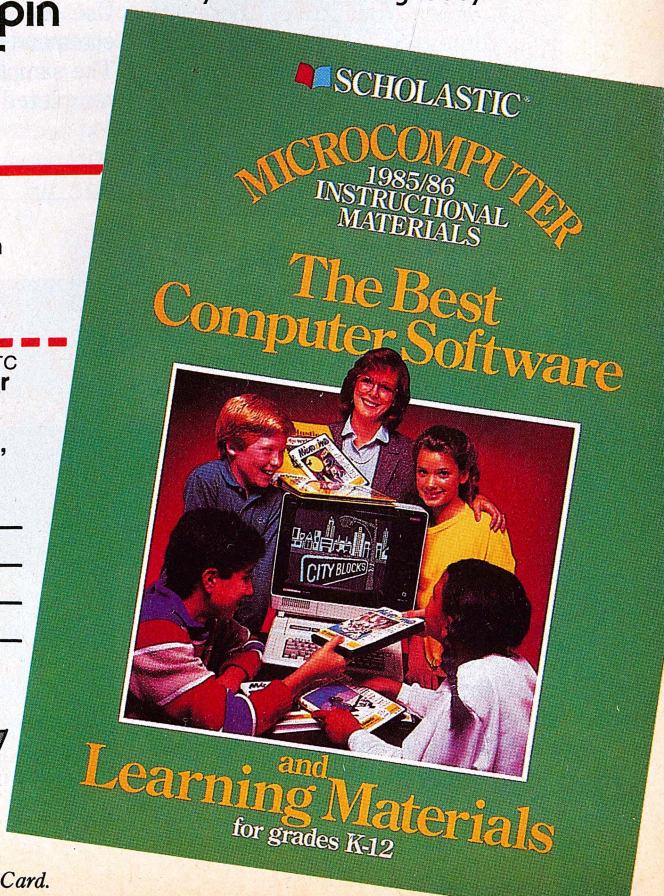

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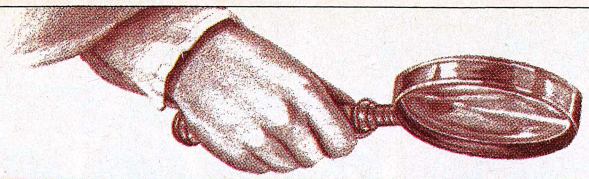


MYSTERY TASK 4 CARD

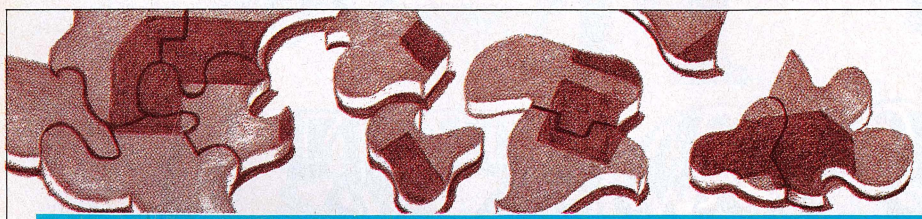
SUSPECTS

Ask your teacher for the data disk or cassette that goes with this card. Load it and call up the file named SUSPECTS.

As the detective, you are looking for suspects in this mystery. Ask yourself who could have committed such a crime. You must invent five suspects and connect them with the crime in some way.

On the screen, you'll see a form to fill out for each of the suspects. Use the INSERT, DELETE, and MOVE commands to fill in the information. The sample below shows how a completed form might look.

NAME: *Henry T. Wheeler*
ADDRESS: *1101 Suburban Drive*
AGE: *34*
OCCUPATION: *Taxi driver*
DESCRIPTION: *Stocky build, dark hair, shifty eyes, wears blue-tinted round glasses, thin moustache. Appears nervous when talking.*
REASONS FOR SUSPICION: *Gave Mrs. O a ride home from the play at 10 p.m. on July 3. May have been the last person to see her alive.*



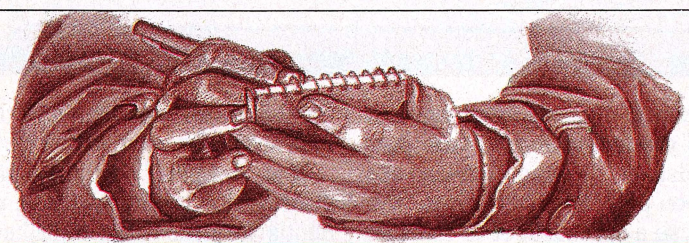
MYSTERY TASK 5 CARD

PLOT MIX-UP

Ask your teacher for the data disk or cassette that goes with this card. Load it and call up the file named MIX-UP.

Now it's time to begin work on the *plot* of your story. A plot is the plan of events or the main storyline for your mystery story. The plot of a mystery usually centers around the detective and the steps he goes through to solve a crime. These steps need to be in a logical order so that the reader does not get confused.

On the screen you'll see a sample plot. You will notice that the steps are out of order. Think about the order of events in most mystery stories. Use the MOVE command to rearrange the events so that they are in the correct order. Then ask you teacher to check your answer. The correct order is printed on page 18 of *Teaching and Computers.*



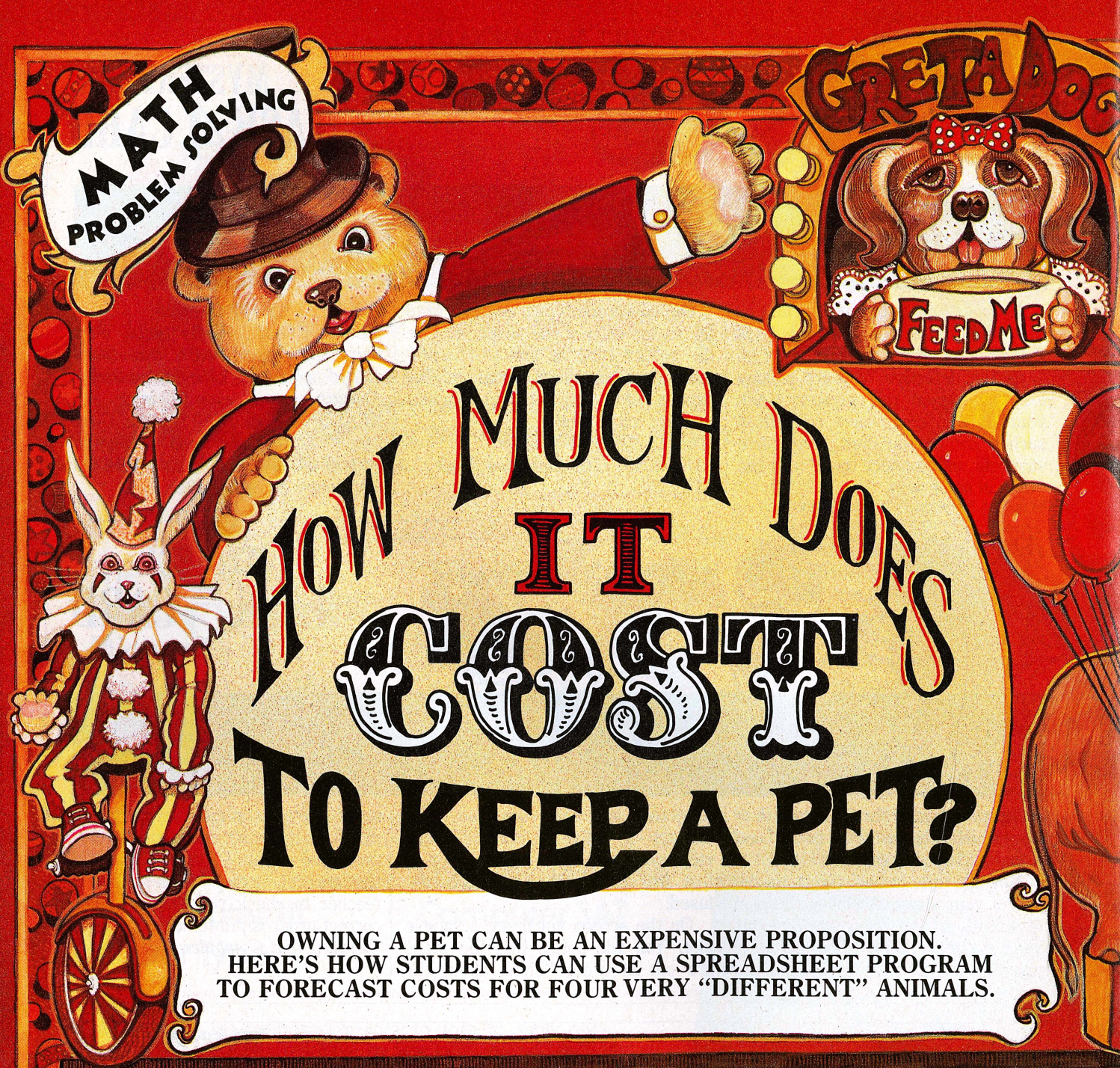
MYSTERY TASK 6 CARD

YOUR OWN PLOT

Ask your teacher for the data disk or cassette that goes with this card. Load it and call up the file named PLOT.

This activity will help you set up a plot for your own mystery story. On the screen, you'll see several numbered questions. Use the INSERT command to answer each question in a complete sentence. At this point, only record the main ideas of your story, not all the details. You can use those details when you actually write your story later.

Remember that you don't have to use all your clues, witnesses, and suspects in the story. Use as many as you need to keep it suspenseful. Use your imagination and try to select the most interesting and unusual clues, witnesses, and suspects for your story.



How Much Does It Cost To Keep a Pet?

OWNING A PET CAN BE AN EXPENSIVE PROPOSITION. HERE'S HOW STUDENTS CAN USE A SPREADSHEET PROGRAM TO FORECAST COSTS FOR FOUR VERY "DIFFERENT" ANIMALS.

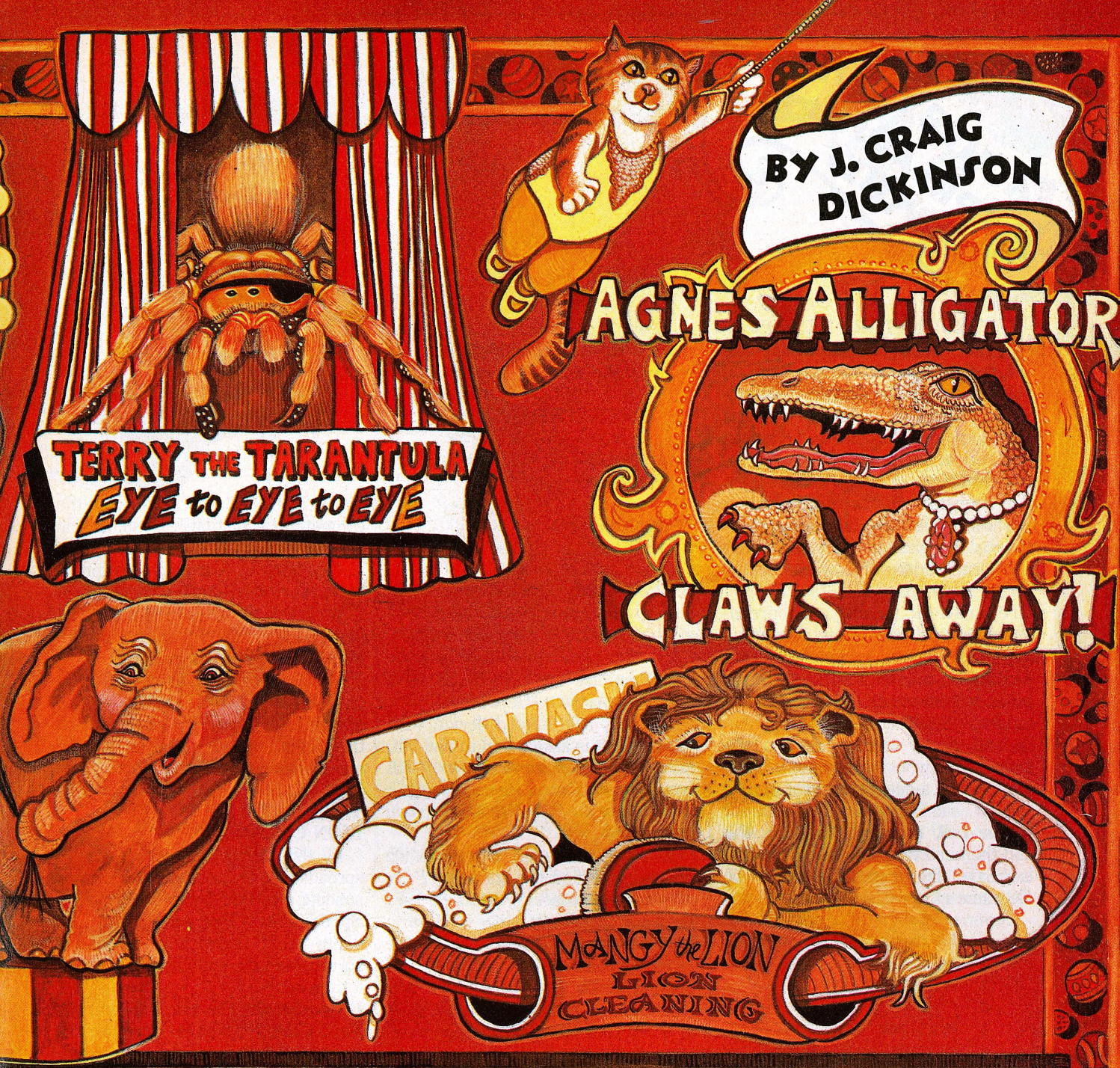
The cost of keeping a pet sure adds up. There's food, the vet, the car wash. . . . The car wash? Well, you see, George has this pet lion named Mangy who enjoys a daily roll in the mud. Mangy's simply too big to fit in the bathtub, so George takes him to the local car wash for a cleaning.

Mangy the lion, Terry the tarantula, Greta the dog, and Agnes the alligator are all characters from the math story problems in this teaching unit. In the unit, students use a spreadsheet program to solve problems that involve calculating expenses for each of these unusual pets. (If you are unfamiliar with how a spreadsheet program works, see the box on page 26.)

Why use a spreadsheet to forecast costs? Because, when students use a spreadsheet, they cannot guess at the answers to math problems. The spreadsheet forces them to use problem solving strategies. First, they must determine what information is needed to solve the problem. Second, they must enter the information in an organized fashion into a spreadsheet table. Finally, they must come up with a formula (equation) that uses the information to produce the correct answer.

The computer calculates the answer automatically, based on the student's formula. Therefore, students spend less time on rote computation and more time on problem solving skills.

This teaching unit consists of an introductory group lesson and three task card activities (which students can complete individually). For the introductory lesson and each of the first two cards, you must prepare a spreadsheet in advance. The introductory lesson steps students



Thomas Sperling

through the process of solving a story problem with a spreadsheet. When using the the first two task cards, students call up a spreadsheet and add or change values in order to solve a story problem. The last card asks students to design their own spreadsheet to solve a problem.

The activities are designed specifically for use with the *VisiCalc* program, but can be easily adapted for use with other spreadsheet programs. Check your manual for the following differences:

- *VisiCalc* columns are labeled with letters; rows are labeled with numbers. In some programs, both columns and rows are labeled with numbers.
- In a standard cell, *VisiCalc* allows for nine characters. Other programs have different character allotments. Most programs, however, including *VisiCalc*, allow you to adjust the standard width of their columns to fit more or less text.
- With *VisiCalc*, you can specify that a value show decimals by entering these keystrokes: /F$. (By doing this, 55 becomes 55.00, for example.) Look in the manual under "decimals," "dollars," or "rounding" for your program's method of displaying decimal amounts.
- Dollar signs are not included with any spreadsheet values in this unit because *VisiCalc* does not accept them. Your manual will indicate whether or not your program allows for the use of dollar signs.
- In *VisiCalc*, the + at the beginning of a cell entry does not mean "to add." Rather, it indicates that the entry is a formula. (A + sign in the middle of a formula *does* mean "to add.") Other programs might use another symbol, such as =, or nothing at all, to indicate a formula.

(continued)

T. SPERLING

TEACHER'S GUIDE TO SPREADSHEET ACTIVITIES

INTRODUCTORY LESSON

The following activity steps students through the process of solving a story problem on a spreadsheet. For best results, present the activity to no more than five or six students at a time.

Spreadsheet Perequisites: Students must know what a spreadsheet is, how to identify different spreadsheet cells, and how to enter values and formulas into cells. (See *Spreadsheet Primer*, page 26.)

Preparation: Load your spreadsheet program and enter the following file. As soon as you enter the formulas in cells B7 and B9, the computer will automatically calculate the answers (14.00 and 728, respectively) and display them in place of the formula. (If you are using *VisiCalc*, you can get a decimal amount in cells B5, B7, and B9 by moving the cursor to the cell, pressing the keys /F$, and then entering the value or formula.) Save the spreadsheet under the file name PETS.

	A	B
1	PACKAGES	
2	PER WEEK	7
3		
4	PRICE PER	
5	PACKAGE	2.00
6		
7	COST/WEEK	+B2*B5
8		
9	COST/YEAR	+B7*52

Activity: Write the following story problem on the chalkboard.

Greta the dog eats 7 packages of food per week. Each package costs $2. How much does it cost to feed Greta for a week? For a year (52 weeks)?

Read the story problem. Then show students how to load the spreadsheet program and call up the file named PETS. It will look like this.

PETS SPREADSHEET

	A	B
1	PACKAGES	
2	PER WEEK	7
3		
4	PRICE PER	
5	PACKAGE	2.00
6		
7	COST/WEEK	14.00
8		
9	COST/YEAR	728.00

Together, use the PETS file to solve the story problem. Here's how:

1. First, ask kids to decide what the problem is asking you to find out. *(The total cost of an item after it has been bought several times during a week. Plus, the cost after being bought for a year.)*

2. Now decide what information you need to find the answer. *(Price per package, number of packages used per week, number of weeks in a year.)*

Point out to students where the PETS spreadsheet shows that the number of PACKAGES PER WEEK is 7 (cell B2) and the PRICE PER PACKAGE is $2.00 (cell B5). Write these numbers on the board.

3. As a group, develop an equation that uses these numbers to calculate the answer *(7 x $2.00 = cost per week)*. Write this equation on the board. Come up with an equation to find the yearly cost *([7x $2.00] x 52 = cost per year)*.

4. The final step is to do the arithmetic for each equation. Tell children that in this case, the computer has calculated the answers for them (cells B7 and B9). Write the answers on the board next to their equations.

Now move the cursor to cell B7. The formula B2*B5 will appear on the screen. This formula tells the computer to multiply the number in cell B2 (7) by the number in cell B3 (2.00). Look at your first equation on paper. It, too, multiplies the numbers 7 (packages per week) and 2.00 (cost per package). B2*B5 is the *spreadsheet formula* for this problem.

Move your cursor to cell B9. The formula B7*52 will appear on the screen. Point out to students that this formula is comparable to the second equation on the chalkboard.

TASK CARD 1: LION CLEANING

In this activity, students use a spreadsheet to calculate the cost of sending a lion through a car wash.

Spreadsheet Prerequisites: Students must know how to load a spreadsheet file and enter values and formulas.

Preparation: Cut out and laminate Task Card 1 on page 26. Load the spreadsheet program into your computer and enter the following spreadsheet file. Save it under the file name LION.

	A	B
1	NUMBER OF	
2	WASHES	2
3		
4	COST PER	
5	WASH	0.75
6		
7	TOTAL	0.00

Activity: Review how to enter a formula using the appropriate symbols

and format for your spreadsheet program. Also, remind students that the * key stands for multiplication on the computer.

Have students complete the task card individually. In the first step of the card, they must find the equation to calculate the total cost of cleaning Mangy the lion (*.75 x 2*). Students then translate this equation into a spreadsheet formula (*B2*B5*) and enter it into cell B7 of the LION spreadsheet file to get the total cost.

Extensions of the story problem allow kids to use the spreadsheet to forecast total washing costs over longer periods of time and with price increases.

Answers to Task Card: 1) .75 x 2 = TOTAL COST; 2) B2*B5; 3) $1.50; 4) $5.25; 5) $22.50; 6)$37.50.

TASK CARD 2: CLAWS AWAY!

In this activity, students use a spreadsheet to calculate the cost of declawing an alligator.

Prerequisites: Students must know how to load a spreadsheet file and enter values and formulas.

Preparation: Cut out and laminate Task Card 2 on page 27. Load the spreadsheet program into your computer and enter the following spreadsheet file. Save it under the file name CLAWS.

	A	B
1	PRICE	
2	PER CLAW	2.50
3		
4	NUMBER	
5	OF CLAWS	19
6		
7	TOTAL	0.00
8		
9	CASH	
10	ON HAND	35.00
11		
12	MONEY	
13	NEEDED	0.00

Activity: Have students complete Task Card 2 individually. On the card, students must develop an equation to calculate the total cost of declawing Agnes the alligator (*19 x $2.50*). They then translate this equation into a spreadsheet formula (*B2*B5*) and enter it into cell B7 of the CLAW spreadsheet file to get a total cost for the declawing operation (*$47.50*).

An extension of the story problem allows students to use the spreadsheet to calculate how much more money Agnes' owner must save up before Agnes can have the operation. Another extension has kids change the cost per claw in the spreadsheet and examine the results.

Answers to Task Card: 1) 19 x 2.50 = TOTAL COST; 2) B2*B5; 3) $47.50; 4a) $47.50 - 35 = MONEY NEEDED; 4b) B7 - B10; 4c) $12.50; 5a) $57; 5b) $22.

TASK CARD 3: SEEING EYE TO EYE TO EYE . . .

In this activity, students create a simple spreadsheet to calculate the cost of eye surgery for a tarantula spider.

Prerequisites: Students must know how to enter labels, values, and formulas into a blank spreadsheet. They also must know how to enter dollar amounts to the second decimal place. (The method varies from program to program.)

Preparation: Cut out and laminate Task Card 3 on page 27. Show students how to enter dollar amounts into your spreadsheet program. For example, with the *VisiCalc* program, you type /F$ either before or after entering the value.

Activity: Have students complete Task Card 3 individually. On the card, they must enter labels for each part of the story problem. The labels are: NUMBER OF EYES, COST PER EYE, and TOTAL COST.

Next, students enter values for the two known parts of the problem (*6 for* NUMBER OF EYES, *and 15.50 for* COST PER EYE). Then they enter a formula (*B2*B5*) to calculate the cost of the operation.

Extensions of the problem have kids use the spreadsheet to calculate the cost for giving the same operation to 10 tarantulas and the cost per tarantula at a higher fee.

Answers to Task Card: 1-4) Here is a sample spreadsheet for calculating the cost of Terry the tarantula's operation. (The formula will change to 93.00 after you enter it.)

	A	B
1	NUMBER	
2	OF EYES	6
3		
4	COST PER	
5	EYE	15.50
6		
7	TOTAL	
8	COST	+B2*B5

4a) 6 x 15.50; 4b) B2*B5; 4c) $93; 5) $930; 6) $96.

J. Craig Dickinson teaches math and computer literacy to grades two through six at Asa C. Adams School, Orono, Maine.

SPREADSHEET PRIMER

FOR BEGINNERS ONLY

A spreadsheet is a table of information organized into rows and columns (see illustration). It is useful for calculating numbers and interpreting information. A spreadsheet can be drawn on paper or created on a computer, using a software program designed for this purpose. A computerized spreadsheet is more efficient than a paper spreadsheet because it can do all calculations automatically and because it allows you to move, erase, and insert characters easily.

In a spreadsheet, each intersection of a row and column forms a *cell.* Cells are identified by letter and/or number coordinates, such as A1 or 2,2. (The column number or letter generally comes first; the row number or letter, second.)

Each cell holds one piece of information. The information can be made up of either words (*labels),* numbers (*values*), or formulas.

Figure 1

Milk Money Collection

	A	B
1		AMOUNT
2	SANDY	0.25
3	PETER	0.50
4	STEPHANIE	0.00
5	TOTAL	B2+B3+B4

This simple spreadsheet keeps track of milk money from three students. The formula in cell B5 tells the computer to add the values in cells B2, B3, and B4.

The sample spreadsheet in Figure 1 keeps track of students' milk money. Cells A2 to A5 and cell B1 hold the labels SANDY, PETER, STEPHANIE, TOTAL, and AMOUNT. Cells B2 to B4 hold the values for the milk money paid ($.25, $.50, and $.00). Cell B5 holds the formula for totaling the milk money paid (B2+B3+B4). The formula tells the computer to add up the values in cells B2, B3, and B4. (In many spreadsheet programs, formulas are preceded by a symbol, such as a + sign or an = sign.)

As soon as the formula is entered, the computer makes the calculation and displays the result in cell B5. (See Figure 2).

Figure 2

Milk Money Collection

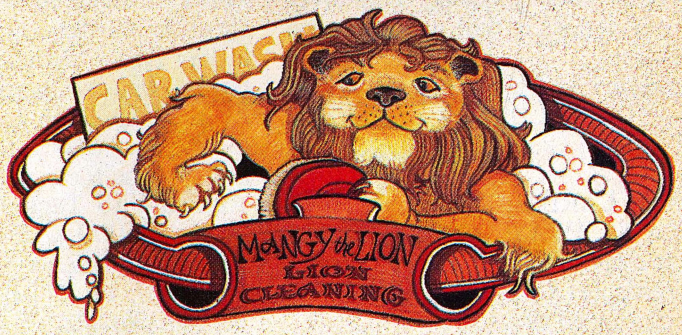
	A	B
1		AMOUNT
2	SANDY	0.25
3	PETER	0.50
4	STEPHANIE	0.00
5	TOTAL	0.75

Once the formula is entered, the computer automatically makes the calculation and displays the answer (.75) in cell B5.

If you change any of the values in cells B2, B3, or B4, the computer will automatically recalculate the total and display the new total in place of the old total in cell B5. For example, if Stephanie gives you $.50 for milk, you enter the amount in cell B4. The computer adds $.25, $.50, and $.50 to get the new total of $1.25.

CUT OUT AND LAMINATE

SPREADSHEET TASK CARD 1



Story Problem: *George's pet lion, Mangy, likes to roll in the mud. Mangy is too big to fit in the bathtub, so George cleans his pet at the local car wash. The cost per wash is $.75. George decides to put Mangy through the car wash 2 times. What is the total cost of washing Mangy?*

Directions: Read the story problem. Then load the spreadsheet program into your computer and call up the file named LION. Use the LION file to solve the problem. Here's how:

1. On a sheet of paper, write the equation for calculating the total cost of the two washes.

2. Now write the equation as a formula. (The numbers in your equation are in cells B2 and B5. Use those cell names in your formula.)

3. Enter the formula in cell B7. Press ENTER or RETURN. What is the total cost of washing Mangy today? Write it on your paper.

More Problems to Solve: Use the spreadsheet to solve the following.

4. How much would it cost to wash Mangy once a day for 7 days? (HINT: To find the answer, change the number in cell B2 to 7.) Write the answer on your paper.

5. How much would it cost to wash Mangy once a day for a month (30 days)? Write the answer on your paper.

6. What if the price per wash goes up to $1.25. How much would it cost to wash Mangy once a day for a month? (HINT: To find the answer, change the number in cell B5 to 1.25) Write the answer on your paper.

SPREADSHEET TASK CARDS

CUT OUT AND LAMINATE

SPREADSHEET TASK CARD 2

Story Problem: *Paula has a pet alligator named Agnes. Paula wants to have all 19 of Agnes' claws taken out. The local vet charges $2.50 per claw. What is the total cost of the operation?*

Directions: Read the story problem. Load the spreadsheet program into your computer and call up the file named CLAWS. Use the CLAWS file to solve the problem. Here's how.

1. On a sheet of paper, write the equation for calculating the total cost of removing Agnes' 19 claws.

2. Now write the equation as a formula. (The numbers in your equation are in cells B2 and B5. Use those cell names in your formula.)

3. Enter the formula in cell B7. Press ENTER or RETURN. What is the total cost? Write it on your paper.

More Problems to Solve: Use the spreadsheet to solve the following.

4. Look at cell B10. Paula has saved $35 for the operation. How much more money does she need for the operation? a) Write down an equation to find the answer. b) Change the equation to a formula. Write down the formula on paper. Now enter it in cell B13. c) Write the answer on your paper.

5. The vet raised his rates to $3 per claw. a) What is the new total cost for declawing Agnes? b) Now how much money does Paula need? Write the answers on your paper.

SPREADSHEET TASK CARD 3

Story Problem: *Terry the tarantula spider needs surgery on all of his eyes so he can see better. He has 6 eyes. The cost per eye is $15.50. What is the total cost for surgery?*

Directions: In this activity, you will make your own spreadsheet to solve the story problem. First, read the problem. Then load the spreadsheet program into your computer and follow these steps.

1. The problem asks you to find the total cost of an operation. Enter the label TOTAL COST in A7 and A8.

2. To calculate the total cost, you need two pieces of information. First, you need to know the number of eyes Terry has. Enter the label NUMBER OF EYES in cells A1 and A2. Second, you need to know the cost per eye. Enter the label COST PER EYE in cells A4 and A5.

3. Terry has 6 eyes. Enter the number 6 in cell B2. The cost of surgery per eye is $15.50. Enter the number 15.50 in cell B5. (Do not include the dollar sign.)

4. What is the equation to calculate the total cost? a) Write it on paper. b) Now change the equation to a formula and write that on paper. Enter the formula in cell B8. c) What is the total cost of the operation?

More Problems to Solve: Use your spreadsheet file to solve the following.

5. How much would it cost to give the same surgery to 10 tarantulas? (Each would need six eyes fixed.) Write the answer on your paper.

6. Suppose the cost per eye is raised to $16. What is the total cost for 1 tarantula? Write the answer on your paper.

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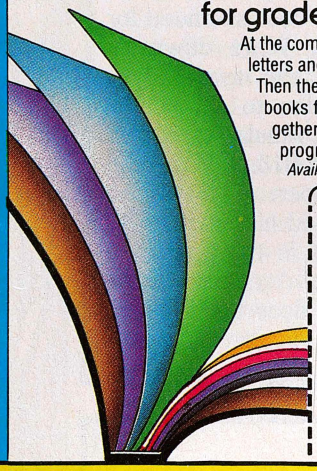

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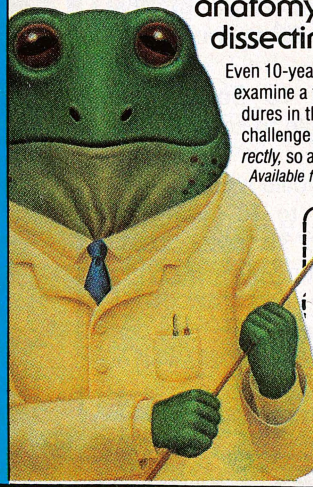

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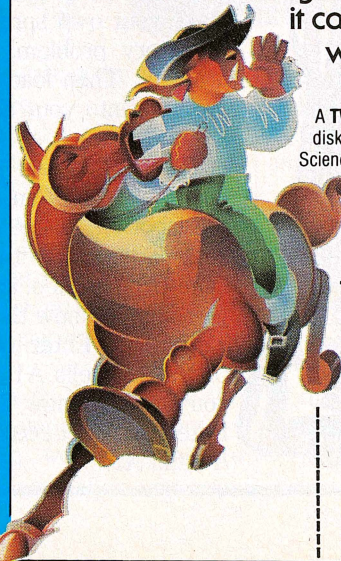

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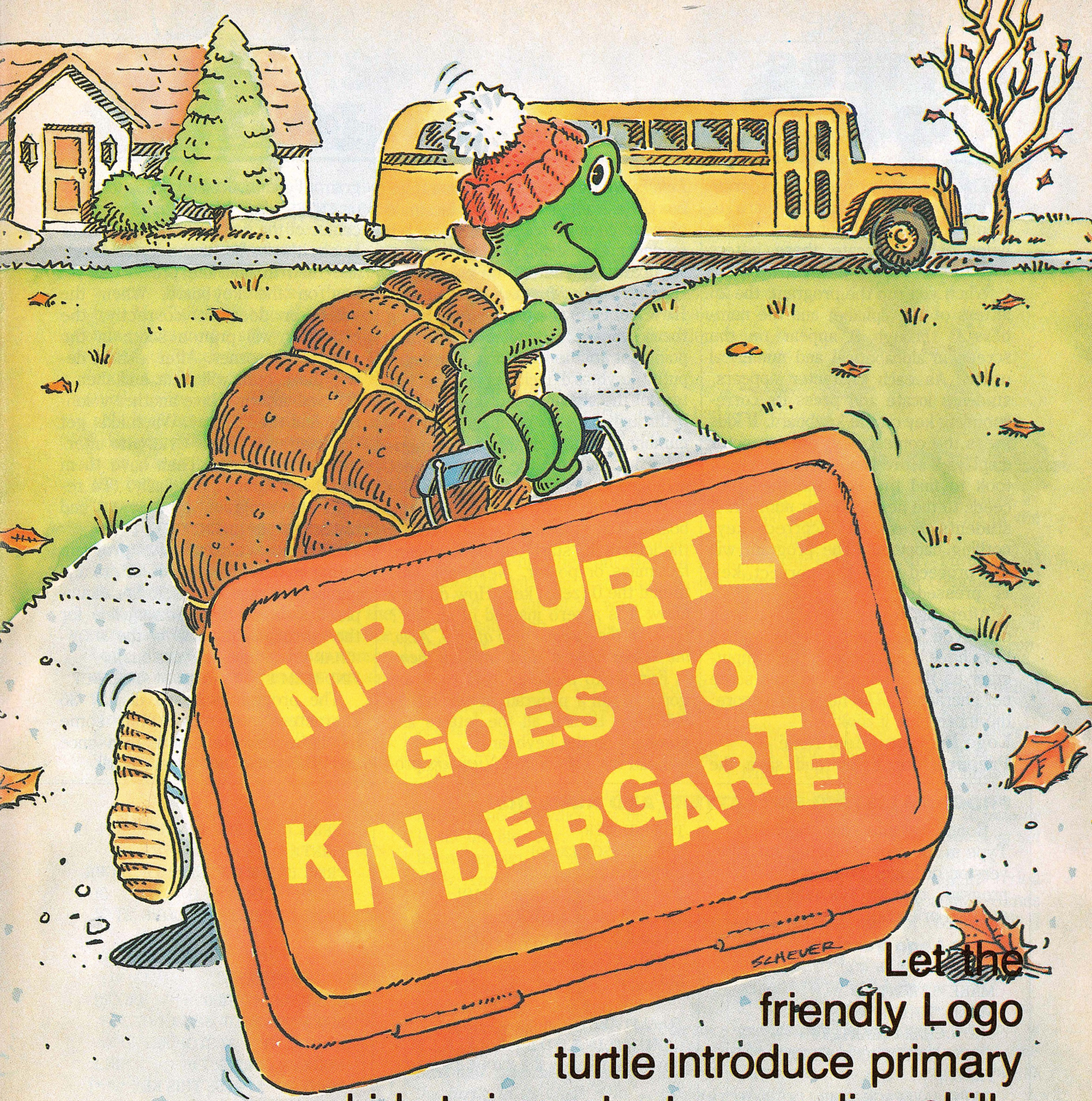


Let the friendly Logo turtle introduce primary kids to important prereading skills.

Philip Scheuer

Logo for five-year-olds? You bet! In fact, kids from kindergarten through third grade will benefit from the two Logo activities in this skills unit.

The first activity, "Letters and Numbers," teaches children to recognize the letters of the alphabet, numbers 0 through 9, and the locations of these letters and numbers on the computer keyboard.

The second activity, "Where is Mr. Turtle's Shell?" helps children develop directionality and distance estimation skills. It also provides practice in using the FORWARD, BACK, LEFT, and RIGHT commands in Logo.

The program listings provided in this unit will work on almost any version of Logo created by the Massachusetts Institute of Technology (such as Apple Logo) or by Logo Computer Systems, Inc. (such as Commodore, Krell, and Terrapin Logo).

These activities were developed by Logo teachers at the Greenfield School in Philadelphia, Pennsylvania. The contributors include Pamela Freyd, Julie Crowe, Steve Koss, Holly Love, and Barbara Pomerantz.

(continued)

ACTIVITY ONE:

LETTERS AND NUMBERS

This activity provides a program listing that helps students learn to identify letters and numbers. It also helps children locate these letters and numbers on the keyboard.

When you run the program, the 26 letters of the alphabet and the numbers 0 through 9 appear on the screen in alphabetical and numerical order. As each character appears, students locate and press its corresponding key on the keyboard. If kids press the correct key, the computer displays a score based on how long it took to find the key and then proceeds to the next letter or number. If students press an incorrect key, nothing happens. (The program will not proceed until the correct key is pressed.)

After all 36 characters have been displayed and their corresponding keys have been pressed, the computer gives the student's average score per character. (The higher the score, the more time it took.)

Logo Prerequisites: None.

Preparation: Enter and save the *Letters and Numbers* program (see box). Pass out a miniature facsimile of your computer keyboard to each student. Or, display a poster-size keyboard like the one on page 25 of October's *Teaching and Computers*.

How to Use the Program: Using the keyboard facsimiles or poster, point out to the class that the computer keyboard includes all the letters of the alphabet and the numbers 0 through 9. Also point out that the number keys are arranged in numerical order, but that the letters are not arranged in alphabetical order.

Write the word "start" on the board. Ask students to find each of the letters in "start" on the keyboard facsimiles or poster. Next, ask kids to find the 0 (zero) key. How do they know it is a zero instead of an "O"? *(It is on the number row after 9. Also, the zeroes have a slash through them.)*

Explain to students that they are going to run a program in which they will have to find all the letters and numbers on the keyboard.

Load the *Letters and Numbers* program. Type START and press RETURN or ENTER. An "A" will appear in the center of the screen. Ask a volunteer to say the name of the letter aloud, and then to find and press the "A" key on the keyboard. When the volunteer does so correctly, the computer will print a score in the bottom left corner. After a short delay, the screen will clear and then a "B" will appear. Have another volunteer find the "B" key. When kids get the hang of it, press CTRL-G to interrupt the program. Then have them run the program individually. (To restart the program, type START and press RETURN or ENTER.)

Extension: Change the program listing so that it prints out letters and numbers in random order. For example, substitute the following line for the corresponding line in the SHOW.CHAR procedure (all versions).

```
FIND ITEM 1 + RANDOM 36 ALPHABET
```

The program will still display 36 characters per round, but some might be displayed more than once and others may not appear at all.

PROGRAM LISTING FOR LETTERS AND NUMBERS

Boot Logo into your computer. Type in the program listing for your version of Logo. To start the program, type LETTERS and press RETURN or ENTER.

Apple Logo Version

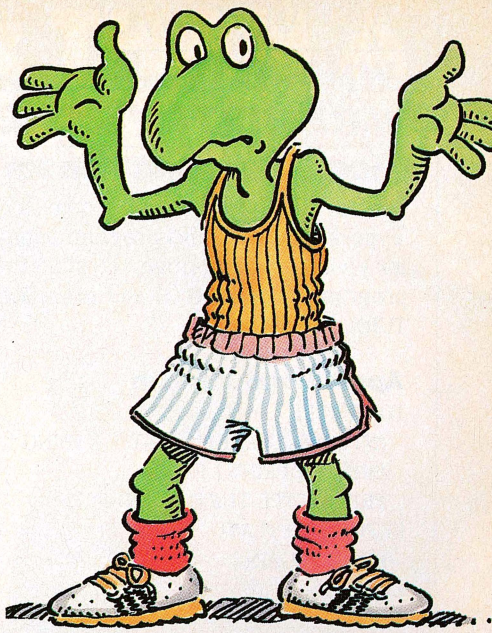
```
TO START
  MAKE "LTRCNT 1
  MAKE "TOTCTR 0
  SHOW.CHAR CLEARTEXT
  (PRINT [KEYS FOUND:] :LTRCNT - 1)
  PRINT [ ]
  (PRINT [AVERAGE TIME:] INT :TOTCTR
/ :LTRCNT - 1)
  PRINT [ ] PRINT [ALL DONE....]
END

TO SHOW.CHAR
  MAKE "COUNTER 0
  MAKE "FOUND 0
  IF :LTRCNT = 37 [STOP]
  CLEARTEXT SETCURSOR [7 0]
  PRINT [* * * PRESS THIS KEY * * *]
  FIND ITEM :LTRCNT ALPHABET
  MAKE "LTRCNT :LTRCNT + 1
  WAIT 200 SHOW.CHAR
END

TO FIND :LTR
  SETCURSOR [20 10]
  PRINT :LTR
  IF KEYP [CHECK READCHAR]
  IF :FOUND = 1 [STOP]
  MAKE "COUNTER :COUNTER + 1
  FIND :LTR
END

TO ALPHABET
  OUTPUT [A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8
9]
END

TO CHECK :CHAR
  IF :CHAR = :LTR [SETCURSOR [0 20]
PRINT [SCORE =] PRINT :COUNTER
MAKE "FOUND 1 MAKE "TOTCTR
:TOTCTR + :COUNTER]
END
```

Commodore, Krell, Terrapin Logo Version

```
TO START
  MAKE "LTRCNT 1
  MAKE "TOTCTR 0
  SHOW.CHAR NODRAW
  (PRINT [KEYS FOUND: ] :LTRCNT - 1)
  PRINT [ ]
  PRINT ([AVERAGE TIME: ] INTEGER
:TOTCTR / :LTRCNT - 1)
  PRINT [ ] PRINT [ALL DONE....]
END

TO SHOW.CHAR
  MAKE "COUNTER 0
  MAKE "FOUND 0
  IF :LTRCNT = 37 STOP
  NODRAW CURSOR 7 0
  PRINT [* * * PRESS THIS KEY * * *]
  FIND ITEM :LTRCNT ALPHABET
  MAKE "LTRCNT :LTRCNT + 1
  WAIT 2000 SHOW.CHAR
END

TO FIND :LTR
  CURSOR 20 10
  PRINT :LTR
  IF RC? CHECK RC
  IF :FOUND = 1 STOP
  MAKE "COUNTER :COUNTER + 1
  FIND :LTR
END
```

ACTIVITY TWO:

WHERE IS MR. TURTLE'S SHELL?



This activity begins with a short Logo program. When you run it, it draws a turtle shell on the right side of the screen and places the Logo turtle on the left side. Next, you read a story aloud to the kids that tells how Mr. Turtle lost his shell. At certain points in the story, students are asked to enter commands into the computer in an effort to move the turtle to its shell. This exercise develops directionality and distance estimation skills. After students succeed in moving the turtle to its shell, the computer displays the ending of the story.

Logo Prerequisites: Introduce students to the commands FORWARD, BACK, LEFT, and RIGHT before starting the activity.

Preparation: Enter and save the *Mr. Turtle's Lost Shell* program (see box). Position your computer screen so that everyone in the class can see it.

How to Use the Program: Boot Logo and load the *Mr. Turtle's Lost Shell* program. Type TURTLE and press RETURN or ENTER. The Logo turtle and a hexagonal shell will appear on the screen.

Read the following story aloud, replacing the names of the friends in the tale (seen in italic throughout) with the names of students in your class. Be sure to follow all directions that appear in the story.

Mr. Turtle's Lost Shell

One night, Mr. Turtle had a bad dream. In the dream, he was on his way to school. He passed the bright, shiny supermarket window. As usual, he looked in the window to see how handsome he was.

Oh no! Mr. Turtle saw that he didn't have his shell on! He had his schoolbag with his math homework. He had his lunchbox with a peanut butter sandwich. And he had his new sneakers specially made for turtle feet. But he didn't have a shell!

Mr. Turtle was very worried. He was worried that people would stare and laugh at him.

Just then, Turtle heard his friends calling to him.

"Mr. Turtle! Mr. Turtle! Wait for me!" came the voices of his friends. In all his life, Mr. Turtle had never been happier to see *Susan, Paul, Billy, Anna,* and the rest of the gang.

"*Susan,* you've got to help me," Mr. Turtle blurted quickly . "I've lost my shell. Can you help me find it?"

"How did you lose your shell?" asked *Susan.* "Well, don't worry. Of course, I'll help you find it."

Point out the turtle and shell on the computer screen. Explain that the student will enter two commands to bring the turtle to its shell. One command will turn the turtle right or left and the other command will move it forward or backward. It's up to him or her to estimate how far and in what direction to make the turtle go to reach its shell.

Susan went to the computer and entered two commands.

Have the student do so. Make sure he or she enters the commands correctly; otherwise, the program will "crash." Continue with the story only if the turtle does not reach its shell.

"I don't see my shell," said Mr. Turtle. "Are you sure it's really there?" He began to wonder how he could explain to his family about the lost shell.

"I can help you, Mr. Turtle!" said *Paul.* He went to the computer and entered two commands.

Have the student do so. Again, if the turtle does not reach the shell, continue with the story.

"Oh no!" said Mr. Turtle. "Will I ever find my shell? I'm getting very chilly." Mr. Turtle started to shiver.

"I think I know where it is," said *Billy.* "Let me put commands into the computer."

Have the student do so. Continue with the story only if the turtle does not reach its shell.

"I'll never find my shell!" cried Turtle. "What if a big animal comes along to eat me up? Where will I hide?"

Turtle looked at all his friends. He asked, "Who will help me now?"

Choose volunteers to enter commands into the computer. The end of the story will be displayed on the computer when the Logo turtle reaches its shell.

Encourage students to run the *Turtle's Lost Shell* program on their own. First change the PRINT statements in the ENDING procedure to a simple message of congratulations. For example:

```
TO ENDING
  PRINT [WAY TO GO!]
END
```

To restart the program, type TURTLE and press RETURN or ENTER. The location of the turtle and shell varies each time the program is run.

(continued)

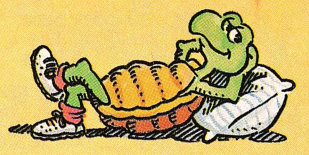
```
TO ALPHABET
  OUTPUT [A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8
9]
END

TO CHECK :CHAR
  IF :CHAR = :LTR CURSOR 0 20 PRINT
[SCORE = ] PRINT :COUNTER MAKE
"FOUND 1 MAKE "TOTCTR :TOTCTR +
:COUNTER
END

TO WAIT :TIME
  REPEAT :TIME [ ]
END
```

Note: If you are using an early version of Krell or Terrapin Logo, ITEM might not be a primitive (built-in) command. (Check your user's manual.) If that is the case, you will have to add this procedure.

```
TO ITEM :N :STUFF
  IF :N = 1 OUTPUT FIRST :STUFF
  OUTPUT ITEM :N - 1 BUTFIRST :STUFF
END
```

ACTIVITY TWO: *(continued)*

WHERE IS MR. TURTLE'S SHELL?



PROGRAM LISTING FOR MR. TURTLE'S LOST SHELL

Boot Logo into your computer. Type in and save the program listing for your version of Logo. To start the program, type TURTLE and press RETURN or ENTER.

Apple Logo Version

```
TO TURTLE
  INTRO HOUSEKEEP TESTIT ENDING
  PRINT [ ] PRINT [ ]
  PRINT [TYPE TURTLE AND PRESS
RETURN TO PLAY]
  PRINT [AGAIN.]
END

TO INTRO
  SPLITSCREEN CLEARTEXT
  SETCURSOR [0 20]
  PRINT [HELP THE TURTLE FIND ITS
SHELL.]
  PRINT [COMMANDS --> FD BK LT RT]
END

TO HOUSEKEEP
  CS HT PU
  SETX (60 + RANDOM 60)
  SETY (RANDOM 100 - RANDOM 100)
  MAKE "M XCOR
  MAKE "N YCOR
  PD SETH 0 REPEAT 6 [FD 10 RT 60] PU
  SETX (-70 - RANDOM 60)
  SETY (RANDOM 120 - RANDOM 120)
  SETH 90 * RANDOM 4 PD ST
END

TO TESTIT
  RUN READLIST
  IF XCOR > :M + 20 [TESTIT]
  IF XCOR < :M [TESTIT]
  IF YCOR > :N + 20 [TESTIT]
  IF YCOR < :N [TESTIT]
END

TO ENDING
  TEXTSCREEN CLEARTEXT
  PRINT ["YOU FOUND IT! YOU FOUND
IT!" CRIED]
  PRINT [MR. TURTLE. HE JUMPED FOR
JOY.]
  PRINT [ ]
  PRINT [WHAM! MR. TURTLE WAS ON
THE FLOOR. HE]
  PRINT [HAD FALLEN OUT OF BED! MR.
TURTLE HAD]
  PRINT [DREAMT THE STORY OF THE
LOST SHELL.]
  PRINT [ ]
  PRINT ["EVEN SO," HE THOUGHT. "I
STILL HAVE]
  PRINT [THE BEST FRIENDS IN THE
WORLD!"]
END
```

Commodore, Krell, Terrapin Logo Version

Type in the TURTLE, HOUSEKEEP, and ENDING procedures from the Apple Logo program listing. Then enter the following procedures.

```
TO INTRO
  SPLITSCREEN CLEARTEXT
  CURSOR 0 20
  PRINT [HELP THE TURTLE FIND ITS
SHELL.]
  PRINT [COMMANDS --> FD BK LT RT]
END

TO TESTIT
  RUN REQUEST
  IF XCOR > :M + 20 TESTIT
  IF XCOR < :M TESTIT
  IF YCOR > :N + 20 TESTIT
  IF YCOR < :N TESTIT
END
```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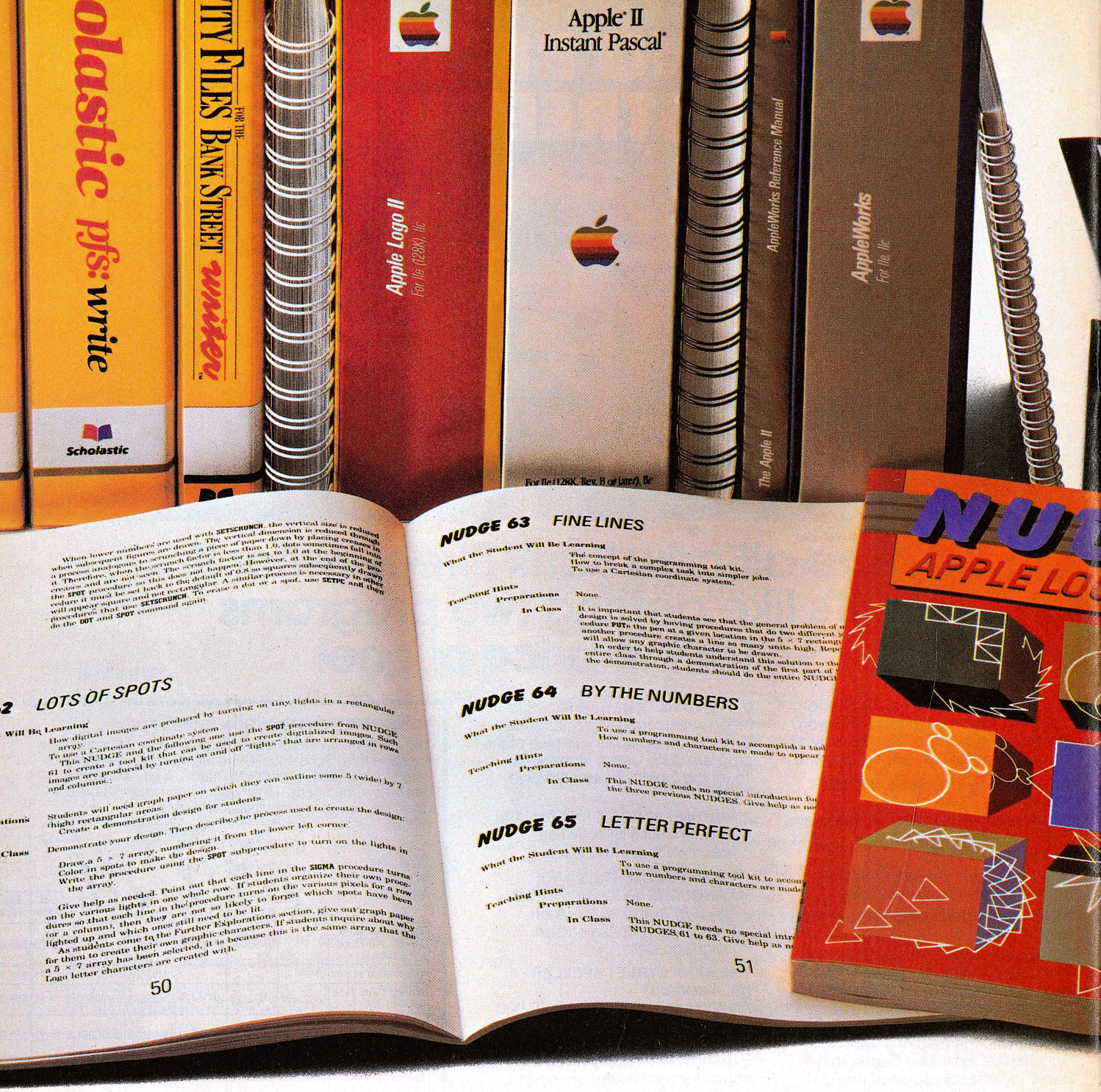

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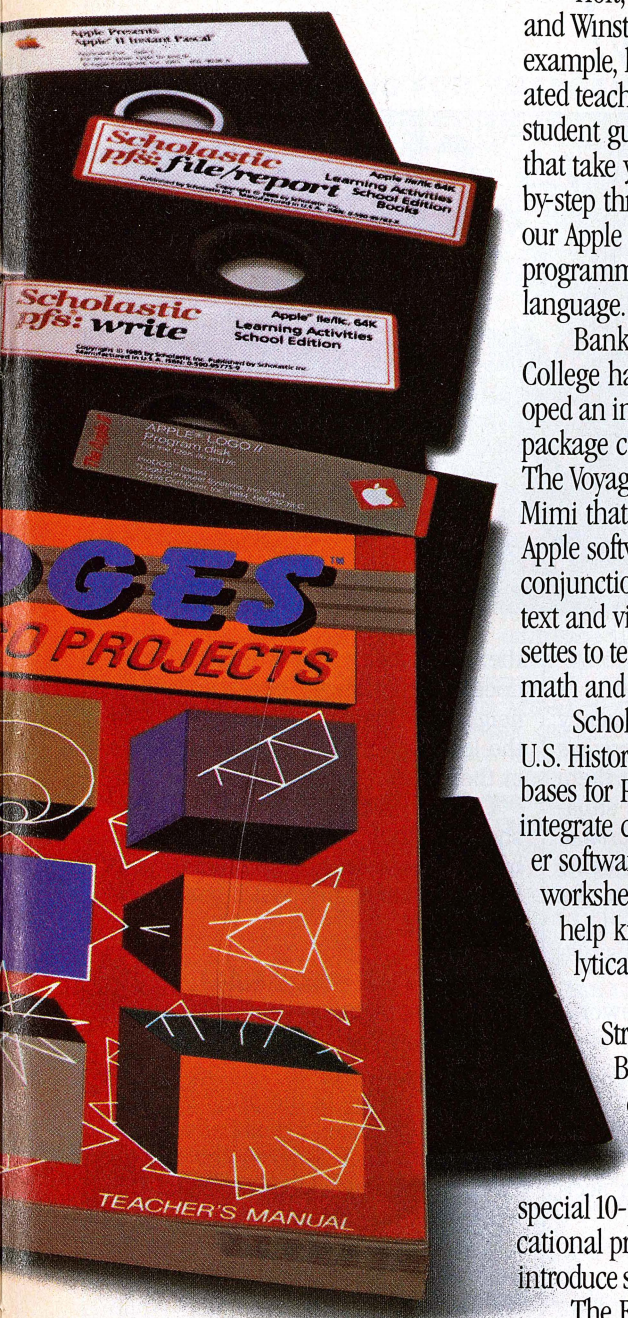

to find better ways of making software programs work in conjunction with learning objectives covered in textbooks.

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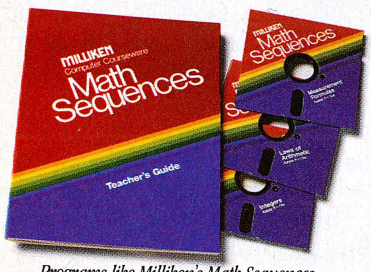

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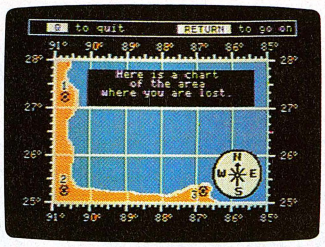

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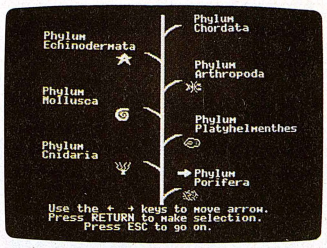

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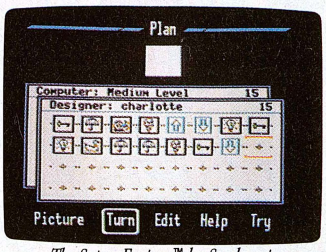

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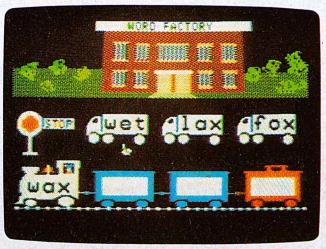

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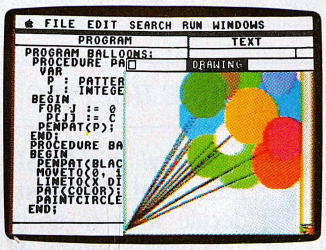

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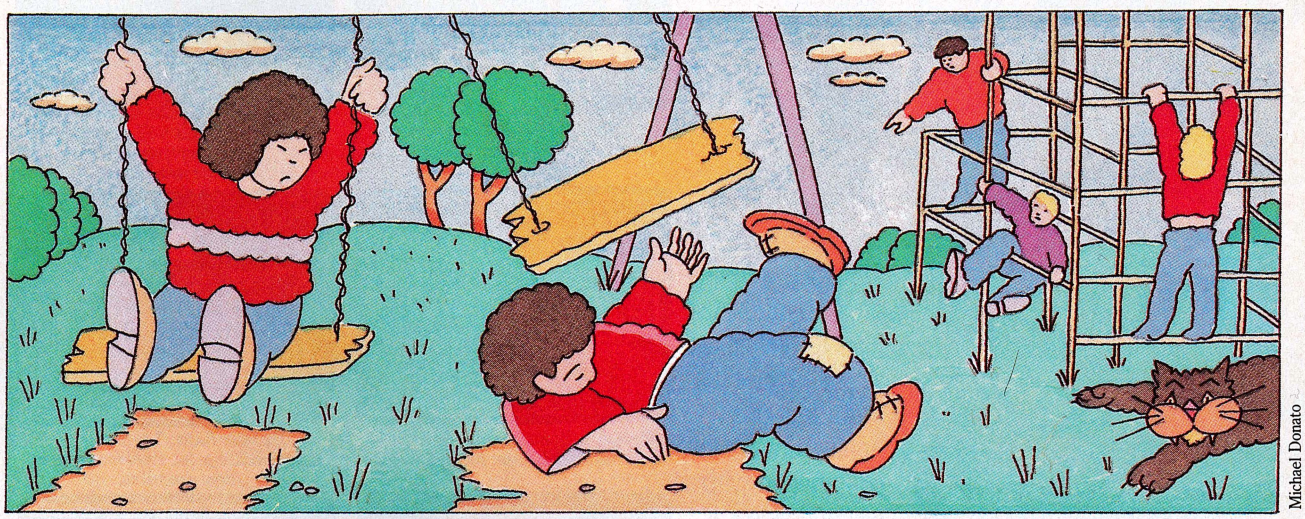
Emergency!



Michael Donato

BY LORRAINE HOPPING

Emergency! is a BASIC program that helps students decide what to do in eight situations. Several of these situations are emergency situations; others could become emergencies if not handled properly.

HOW THE PROGRAM WORKS

In the *Emergency!* program, Elmer "Bad Luck" Briggs, an imaginary friend, runs into the following problems.

- He misses the school bus.
- He loses his house key.
- He gets stung by a bee.
- He witnesses a bicycle theft.
- He falls off a swing set and nearly breaks his arm.
- He sets the stove on fire.
- He blows a fuse in his house.
- A stranger knocks on the door while he is home and his parents are not.

For each problem situation, students must choose between three courses of action for Elmer. Correct choices solve Elmer's problems and give students points. Incorrect choices cause further problems.

For some problems, students can gain extra points by correctly entering the appropriate emergency phone number for their area. The largest number of points children can score is 140.

INTRODUCING THE PROGRAM

Ask students what an emergency is. *(Any dangerous situation, serious accident, or serious illness.)* Ask them to give examples of emergency situations. *(A fire, a gas leak, a broken arm, an allergic reaction, and so on.)* Write down their reponses on the board.

Ask students if the following situations are emergencies:

- Forgetting to do your homework. *(No.)*
- Burning a pan of cookies. *(No, unless it catches fire.)*
- Getting lost in a strange city. *(Yes.)*
- Smashing your bicycle in an accident. *(Yes, if you are hurt.)*
- Breaking a chair when your parents aren't home. *(No.)*

Explain to students that many emergency situations are avoidable. For example, many fires are caused by carelessness. Review the list of emergencies on the board and decide which ones could probably be avoided and how.

One of the best ways to avoid an emergency or to handle one that is unavoidable is to be prepared. Posting a list of emergency phone numbers is one good means of preparation. Make copies of the Emergency Phone List worksheet on page 53 and pass out one copy to each student. The worksheet asks students to fill in emergency phone numbers, including the police, fire department, family doctor, ambulance, parents, and a neighbor. Students must also fill in the locations of the fire extinguishers in their homes and at school.

Children will need to refer to this sheet as they operate the program, but afterward, encourge them to take the sheet home and post it in a prominent place.

USING THE PROGRAM

Type in and save the *Emergency!* program on page 49. Have students run through the program individually. At the beginning of the program, students will be asked to enter the information on their Emergency Phone List, so remind kids to have the worksheets handy.

Encourage the programmers in your class to add more situations to the program. For example, while Elmer is home alone, the gas stove could leak, the telephone could ring, a robber could enter the house, Elmer could break a lamp, he could choke on some food, he could get something in his eye, or he could have an asthma attack.

An excellent resource for information on handling emergencies is *The Official Kids' Survival Kit,* by Elaine Chaback and Pat Fortunato ($8.95; Little, Brown, and Co., 34 Beacon St., Boston, MA 02106).

Lorraine Hopping is associate editor for *Teaching and Computers.*

PROGRAM LISTING FOR *EMERGENCY!*

This program listing is for Apple computers. To convert the program for use on Atari, Commodore 64, Radio Shack Color Computer, and TRS-80 Model III computers, see the Conversion Chart on page 68.

```
10  REM EMERGENCY! @1985 SCHOLASTIC INC.
20  HOME : CLEAR
30  PRINT "  ELMER 'BAD LUCK' BRIGGS CAN'T GET"
40  PRINT "THROUGH A SINGLE DAY WITHOUT AN"
50  PRINT "EMERGENCY. (THAT'S WHY WE CALL HIM"
60  PRINT "'BAD LUCK.')"
70  PRINT : PRINT "  WHEN ELMER RUNS INTO A PROBLEM, HE"
80  PRINT "TURNS TO YOU FOR HELP."
90  PRINT : PRINT "  HE KNOWS THAT YOU KEEP A LIST OF"
100  PRINT "EMERGENCY PHONE NUMBERS HANDY."
110  PRINT : PRINT "  IN CASE SOMETHING HAPPENS TO ELMER,"
120  PRINT "LET'S REVIEW THE LIST OF PHONE NUMBERS"
130  PRINT "ON YOUR EMERGENCY CHECKLIST WORKSHEET."
140  PRINT : PRINT "  ENTER THE PHONE NUMBER OF THE FIRE"
150  PRINT "DEPARTMENT AND PRESS <RETURN>:": INPUT FD$
160  PRINT : PRINT "  ENTER THE PHONE NUMBER OF THE POLICE"
170  PRINT "DEPARTMENT AND PRESS <RETURN>:": INPUT PD$
180  PRINT : PRINT "  ENTER THE PHONE NUMBER FOR AN"
190  PRINT "AMBULANCE AND PRESS <RETURN>:": INPUT AM$
200  PRINT : PRINT "  ENTER THE PHONE NUMBER OF YOUR"
210  PRINT "DOCTOR AND PRESS <RETURN>:": INPUT DO$
220  PRINT : PRINT "  ENTER YOUR MOTHER'S OR FATHER'S DAY"
230  PRINT "PHONE NUMBER AND PRESS <RETURN>:": INPUT MD$
240  PRINT : PRINT "  ENTER YOUR NEIGHBOR'S PHONE NUMBER"
250  PRINT "AND PRESS <RETURN>.": INPUT NE$
260  PRINT : PRINT "  WHERE IS THE FIRE EXTINGUISHER IN"
270  PRINT "YOUR HOME? (IF YOU DON'T HAVE ONE, TYPE"
280  PRINT "'NONE' AND PRESS <RETURN>.": INPUT FI$
290  PRINT : PRINT "  PRESS <RETURN> TO BEGIN.": INPUT Z$
300  HOME : PRINT "  ELMER'S ALARM CLOCK DOESN'T GO OFF."
310  PRINT "HE WAKES UP LATE AND MISSES THE BUS."
320  PRINT "HIS PARENTS HAVE ALREADY LEFT FOR WORK."
330  PRINT : PRINT "  HE CALLS YOU FOR ADVICE. YOU SAY:"
340  PRINT : PRINT "  1. HITCHHIKE TO SCHOOL."
350  PRINT "  2. TAKE THE DAY OFF."
360  PRINT "  3. GET A RIDE FROM A NEIGHBOR."
370  GOSUB 2000
380  IF A$ = "1" THEN  GOSUB 3000
390  IF A$ = "2" THEN  GOSUB 3100
400  IF A$ = "3" THEN SC = SC + 10: GOSUB 3200
410  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
420  HOME : PRINT "  ELMER IS IN SUCH A HURRY TO GET TO"
430  PRINT "CLASS THAT HE LOSES HIS HOUSE KEY."
440  PRINT : PRINT "  YOU TELL HIM:"
450  PRINT : PRINT "  1. DON'T WORRY. IT WILL TURN UP SOME-"
460  PRINT "WHERE."
470  PRINT "  2. CALL MOM OR DAD RIGHT AWAY."
480  PRINT "  3. LOOK FOR IT AFTER SCHOOL."
490  GOSUB 2000
500  IF A$ = "1" OR A$ = "3" THEN  GOSUB 3300
510  IF A$ = "2" THEN SC = SC + 10: GOSUB 3400
520  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
530  HOME : PRINT "  AT RECESS, YOU AND ELMER HEAD OUT TO"
540  PRINT "THE PLAYGROUND."
550  PRINT "  'OUCH!' SHOUTS ELMER. 'A BEE STUNG"
560  PRINT "ME! I FEEL WEAK."
570  PRINT : PRINT "  WHAT DO YOU DO TO HELP ELMER?"
580  PRINT : PRINT "  1. CALL A DOCTOR RIGHT AWAY."
590  PRINT "  2. NOTHING. IT'S JUST A BEE STING."
600  PRINT "  3. KILL THE BEE."
610  GOSUB 2000
620  IF A$ = "1" THEN SC = SC + 10: GOSUB 3500
630  IF A$ = "2" OR A$ = "3" THEN  GOSUB 3600
640  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
650  HOME : PRINT "  YOU AND ELMER ARE EATING LUNCH."
660  PRINT "  ELMER POINTS OUTSIDE. 'LOOK!' HE"
670  PRINT "SAYS. 'SOMEONE IS TAKING BILLY'S BIKE.'"
```

(continued)

(continued from page 49)

PROGRAM LISTING FOR *EMERGENCY!*

```
680  PRINT : PRINT "  YOU REPLY:"
690  PRINT : PRINT "  1. LET'S TELL THE MAN TO STOP."
700  PRINT "  2. FORGET IT. IT'S NOT OUR BIKE."
710  PRINT "  3. LET'S CALL THE POLICE."
720  GOSUB 2000
730  IF A$ = "1" THEN  GOSUB 3700
740  IF A$ = "2" THEN  GOSUB 3800
750  IF A$ = "3" THEN SC = SC + 10: GOSUB 3900
760  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
770  HOME : PRINT "  LATER THAT DAY, ELMER FALLS OFF THE"
780  PRINT "SWING SET. HE IS NOT MOVING. HIS ARM"
790  PRINT "LOOKS TWISTED."
800  PRINT : PRINT "  WHAT CAN YOU DO TO HELP ELMER?"
810  PRINT : PRINT "  1. HELP HIM STAND ON HIS FEET."
820  PRINT "  2. CALL AN AMBULANCE."
830  PRINT "  3. TELL HIM HE LOOKS LIKE HE IS GOING"
840  PRINT "TO DIE."
850  GOSUB 2000
860  IF A$ = "1" THEN  GOSUB 4000
870  IF A$ = "2" THEN SC = SC + 10: GOSUB 4100
880  IF A$ = "3" THEN  GOSUB 4200
890  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
900  HOME : PRINT "  ELMER INVITES YOU TO HIS HOUSE FOR"
910  PRINT "AN AFTER-SCHOOL SNACK. HE PUTS A PAN OF"
920  PRINT "SOUP ON THE STOVE. IT CATCHES FIRE."
930  PRINT : PRINT "  YOU KNOW JUST WHAT TO DO:"
940  PRINT : PRINT "  1. TURN OFF THE HEAT AND COVER THE"
950  PRINT "PAN WITH A LID."
960  PRINT "  2. POUR WATER ON THE FIRE."
970  PRINT "  3. PANIC AND RUN OUT OF THE HOUSE."
980  GOSUB 2000
990  IF A$ = "1" THEN SC = SC + 10: GOSUB 4300
1000  IF A$ = "2" OR A$ = "3" THEN  GOSUB 4400
1010  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
1020  HOME : PRINT "  ELMER PUTS THE SOUP IN THE TOASTER"
1030  PRINT "OVEN AND TURNS ON THE STEREO, THE TV,"
1040  PRINT "AND TWO LAMPS."
1050  PRINT "  SUDDENLY, EVERYTHING GOES OFF."
1060  PRINT : PRINT "  IT'S A GOOD THING YOU ARE THERE TO:"
1070  PRINT : PRINT "  1. FIND A FLASHLIGHT AND GO DOWN-"
1080  PRINT "STAIRS TO THE FUSE BOX."
1090  PRINT "  2. TURN OFF ALL THE APPLIANCES."
1100  PRINT "  3. DO BOTH 1 AND 2."
1110  GOSUB 2000
1120  IF A$ = "3" THEN SC = SC + 10
1130  GOSUB 4500
1140  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
1150  HOME : PRINT "  SOMEONE KNOCKS ON THE FRONT DOOR."
1160  PRINT : PRINT "  YOU TELL ELMER TO:"
1170  PRINT : PRINT "  1. OPEN THE DOOR TO SEE WHO IT IS."
1180  PRINT "  2. ASK WHO IT IS."
1190  PRINT "  3. IGNORE IT."
1200  GOSUB 2000
1210  IF A$ = "1" THEN  GOSUB 4600
1220  IF A$ = "2" THEN SC = SC + 10: GOSUB 4700
1230  IF A$ = "3" THEN  GOSUB 4800
1240  PRINT : PRINT "  PRESS <RETURN>.": INPUT Z$
1250  HOME : PRINT "  ELMER'S PARENTS RETURN HOME. YOU SAY"
1260  PRINT "GOODBYE TO ELMER AND LEAVE."
1270  PRINT "  YOU REMEMBER, THOUGH, THAT TOMORROW"
1280  PRINT "WILL BE ANOTHER DAY IN THE LIFE OF"
1290  PRINT "ELMER 'BAD LUCK' BRIGGS."
1300  PRINT : PRINT "  BY THE WAY, YOUR SCORE WAS ";SC
1310  PRINT "OUT OF 140."
1320  END
2000  REM  ENTER AND CHECK ANSWER
2010  PRINT : PRINT "  ENTER THE NUMBER OF YOUR CHOICE AND"
2020  PRINT "PRESS <RETURN>."
2030  INPUT A$: IF A$ <  > "1" AND A$ <  > "2" AND A$ <  > "3" THEN 2030
2040  RETURN
```

PROGRAM LISTING FOR *EMERGENCY!*

```
3000  REM  DON'T HITCHHIKE
3010  PRINT "  ELMER SAYS, 'THAT SOUNDS DANGEROUS."
3020  PRINT "MOM SAYS NEVER TO RIDE WITH STRANGERS.'"
3030  PRINT "  YOU TELL ELMER TO CALL A NEIGHBOR."
3040  GOSUB 3200: RETURN
3100  REM  DON'T SKIP SCHOOL
3110  PRINT "  ELMER GETS INTO BIG TROUBLE FOR NOT"
3120  PRINT "GOING TO SCHOOL. HE MISSES A MATH TEST."
3130  PRINT "THE TEACHER GIVES HIM AN F. ELMER'S"
3140  PRINT "PARENTS GROUND HIM FOR THREE WEEKS."
3150  PRINT "  THE NEXT DAY, ELMER GOES TO SCHOOL."
3160  RETURN
3200  REM  RIDE FROM NEIGHBOR
3210  PRINT "  ENTER THE NEIGHBOR'S PHONE NUMBER:": INPUT P$
3220  IF P$ = NE$ THEN  PRINT "  ELMER ARRIVES AT SCHOOL JUST IN TIME.":SC
      = SC + 10
3230  IF P$ <  > NE$ THEN  PRINT "  SORRY, WRONG NUMBER.": GOSUB 3100
3240  RETURN
3300  REM  LOST KEY
3310  PRINT "  ELMER ASKS, 'HOW WILL I GET IN THE"
3320  PRINT "HOUSE WITHOUT A KEY?'"
3330  PRINT "  YOU SAY, 'I GUESS YOU BETTER CALL MOM"
3340  PRINT "OR DAD RIGHT AWAY.'"
3350  GOSUB 3400
3360  RETURN
3400  REM  CALL MOM OR DAD
3410  PRINT "  ENTER MOM'S OR DAD'S PHONE NUMBER:": INPUT P$
3420  IF P$ <  > MD$ THEN  PRINT "  SORRY, WRONG NUMBER. ELMER MAKES THE
     CALL."
3430  IF P$ = MD$ THEN SC = SC + 10
3440  PRINT "  ELMER'S PARENTS TELL HIM WHERE THE"
3450  PRINT "SPARE KEY IS. FROM NOW ON, ELMER KEEPS"
3460  PRINT "THE KEY ON A CHAIN AROUND HIS NECK."
3470  RETURN
3500  REM  CALL DOCTOR
3510  PRINT "  ENTER THE DOCTOR'S PHONE NUMBER:": INPUT P$
3520  IF P$ <  > DO$ THEN  PRINT "  SORRY, WRONG NUMBER. ELMER MAKES THE
     CALL."
3530  IF P$ = DO$ THEN SC = SC + 10
3540  PRINT "  THE DOCTOR ARRIVES AND GIVES ELMER A"
3550  PRINT "SHOT. ELMER RECOVERS FROM THE ATTACK."
3560  RETURN
3600  REM   DO NOTHING FOR BEE STING
3610  IF A$ = "3" THEN  PRINT "  THE BEE IS ALREADY DEAD."
3620  PRINT "  ELMER GETS WORSE. HE SAYS, 'I THINK"
3630  PRINT "YOU BETTER CALL THE DOCTOR RIGHT AWAY.'"
3640  GOSUB 3500: RETURN
3700  REM   TELL THIEF TO STOP
3710  PRINT "  ELMER SAYS, 'HE LOOKS KIND OF SCARY."
3720  PRINT "YOU TELL HIM TO STOP. I'LL WATCH.'"
3730  PRINT "  YOU WALK TOWARD THE THIEF. HE IS VERY"
3740  PRINT "BIG. YOU DECIDE TO CALL THE POLICE."
3750  GOSUB 3900
3760  RETURN
3800  REM  IGNORE THIEF
3810  PRINT "  THE THIEF RIDES AWAY ON BILLY'S BIKE."
3820  PRINT "  BILLY IS MAD AT YOU FOR NOT CALLING"
3830  PRINT "THE POLICE."
3840  RETURN
3900  REM  CALL POLICE
3910  PRINT "  ENTER THE PHONE NUMBER OF THE POLICE:"
3920  INPUT P$
3930  IF P$ <  > PD$ THEN  PRINT "  SORRY, WRONG NUMBER.": GOSUB 3800: GOTO
     3980
3940 SC = SC + 10
3950  PRINT "  WHEN THE POLICE ARRIVE, YOU GIVE THEM"
3960  PRINT "A GOOD DESCRIPTION OF THE THIEF."
3970  PRINT "  THEY CATCH THE THIEF TEN BLOCKS AWAY."
3980  RETURN
4000  REM  DON'T MOVE INJURED PERSON
```

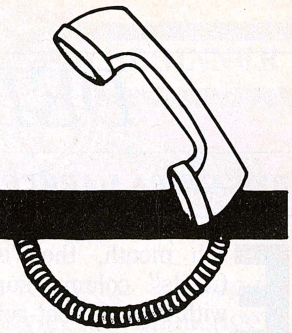
(continued)

(continued from page 51)

PROGRAM LISTING FOR *EMERGENCY!*

```
4010  PRINT "  ELMER SCREAMS IN PAIN. YOU REMEMBER"
4020  PRINT "THAT YOU'RE NOT SUPPOSED TO MOVE AN"
4030  PRINT "INJURED PERSON UNLESS HE OR SHE IS IN"
4040  PRINT "IMMEDIATE DANGER."
4050  PRINT "  ELMER GASPS, 'A-A-AMBULANCE!'"
4060  GOSUB 4100: RETURN
4100  REM  CALL AMBULANCE
4110  PRINT "  ENTER THE PHONE NUMBER FOR AN"
4120  PRINT "AMBULANCE:"
4130  INPUT P$
4140  IF P$ <  > AM$ THEN  PRINT "  SORRY, WRONG NUMBER. A TEACHER MAKES
     THE CALL."
4150  IF P$ = AM$ THEN SC = SC + 10
4160  PRINT "  THE AMBULANCE TAKES ELMER TO THE"
4170  PRINT "HOSPITAL. HIS ARM IS SPRAINED, BUT NOT"
4180  PRINT "BROKEN. HE GOES HOME."
4190  RETURN
4200  REM   SCARE ELMER
4210  PRINT "  ELMER'S EYES GROW BIG. HE GOES INTO"
4220  PRINT "DEEP SHOCK."
4230  PRINT "  YOU REALIZE YOU SAID THE WRONG THING."
4240  PRINT "YOU DECIDE TO CALL FOR AN AMBULANCE."
4250  GOSUB 4100: RETURN
4300  REM  PUT OUT FIRE
4310  PRINT "  YOU SMOTHER THE FIRE. TO MAKE SURE IT"
4320  PRINT "IS OUT, YOU DECIDE TO USE THE FIRE"
4330  PRINT "EXTINGUISHER. WHERE IS IT?"
4340  INPUT P$
4350  IF P$ <  > FI$ OR P$ = "NONE" THEN  PRINT "  YOU CAN'T FIND IT.": GOSUB
     4400
4360  IF P$ = FI$ THEN SC = SC + 10: PRINT "  THE FIRE DIES OUT."
4370  RETURN
4400  REM  POUR WATER/ RUN AWAY
4410  PRINT "  THE FIRE GETS WORSE. YOU DECIDE TO"
4420  PRINT "CALL THE FIRE DEPARTMENT."
4430  PRINT "  ENTER THE PHONE NUMBER:"
4440  INPUT P$
4450  IF P$ <  > FD$ THEN  PRINT "  SORRY, WRONG NUMBER. ELMER MAKES THE
     CALL."
4460  IF P$ = FD$ THEN SC = SC + 10
4470  PRINT "  THE FIRE FIGHTERS PUT OUT THE BLAZE."
4480  RETURN
4500  REM  FUSE BLOWN OUT
4510  PRINT "  YOU CHECK WHAT TO DO IN A BOOK. IT"
4520  PRINT "SAYS: (1) TURN OFF ALL APPLIANCES;"
4530  PRINT "(2) FIND A FLASHLIGHT; (3) GO DOWN-"
4540  PRINT "STAIRS AND FLIP THE SWITCH IN THE FUSE"
4550  PRINT "BOX. YOU FOLLOW THESE STEPS. THE"
4560  PRINT "ELECTRICITY IS WORKING NOW."
4570  RETURN
4600  REM  ANSWER DOOR
4610  PRINT "  ELMER SAYS, 'IT COULD BE A ROBBER. I"
4620  PRINT "BETTER ASK WHO IT IS.'"
4630  GOSUB 4700
4640  RETURN
4700  REM  ASK WHO
4710  PRINT "  'WHO IS IT?' ELMER ASKS."
4720  PRINT "  'IS YOUR MOM HOME?' THE VISITOR ASKS."
4730  PRINT "  ELMER SAYS, 'MY PARENTS ARE...'"
4740  PRINT "  'BUSY!' YOU INTERRUPT. YOU REMIND"
4750  PRINT "ELMER THAT YOU SHOULD NEVER TELL A"
4760  PRINT "STRANGER THAT YOU ARE HOME ALONE."
4770  PRINT "  THE VISITOR LEAVES."
4780  RETURN
4800  REM  IGNORE KNOCK ON DOOR
4810  PRINT "  THE VISITOR KEEPS KNOCKING. HE SAYS,"
4820  PRINT "'HELLO IN THERE! ANSWER THE DOOR!'"
4830  PRINT "  ELMER SAYS, 'I BETTER ASK WHO IT IS.'"
4840  GOSUB 4700: RETURN
```

EMERGENCY CARE WORKSHEET



NAME: _____

DIRECTIONS: Fill in the phone numbers and other information in the blanks below. Use this list with the *Emergency!* program.

EMERGENCY PHONE LIST

Fire Department: _____

Police Department: _____

Ambulance: _____

Doctor: _____

Home phone: _____

Mother (day): _____

Father (day): _____

Neighbor or Friend: _____

Others: _____

_____

_____

_____

Other Emergency Information:

Location(s) of home fire extinguisher(s): _____

_____

Location(s) of school fire extinguisher(s): _____

_____

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DEBUGGING / FOR . . . NEXT

BY SANDRA MARKLE

Each month, the "BASIC Task Cards" column supplies you with four student activity cards that provide practice with BASIC programming skills. Two of the cards cover beginning BASIC concepts and two cards are aimed at the intermediate level, for students who are already familiar with many BASIC commands.

Accompanying the cards is a section of teachers' notes that defines the new concepts and commands on the cards, as well as outlines the teaching objectives and supplies answers to the card activities.

Become familiar with this month's topics by reading the teachers' notes on this page. Then cut out and laminate the Beginner task cards (numbers 5 and 6) on page 55 and the Intermediate task cards (numbers 5 and 6) on page 57. Direct each student to the task cards that correspond to his or her level of programming expertise.

BEGINNER TASK CARD CONCEPTS

This month's Beginner cards examine different kinds of *bugs* (errors) in BASIC programs, and how to *debug* the programs. To debug a program means to search for and correct errors that keep the program from running properly.

One of the most common bugs is a misspelled command word. For example, a slip of the finger on the keyboard could easily turn PRINT into PRUNT. The computer cannot recognize misspelled commands and, therefore, will not process them.

Another type of error is to substitute a word like WRITE or TYPE, for a BASIC command with a similar meaning like PRINT. The computer recognizes a limited number of words and will only process those commands in its vocabulary.

A third type of error is called a *syntax error*. A syntax error means that the command has not been entered in the proper order or with the proper punctuation. In a PRINT statement, for example, the command must come first, followed by the information to be printed in quotation marks. PRINT "HELLO" will work, but "HELLO" PRINT and PRINT HELLO will not.

INTERMEDIATE TASK CARD COMMANDS

This month's intermediate cards examine the FOR...NEXT and STEP commands.

FOR and NEXT are two commands that work together to make the computer repeat a set of instructions a specific number of times.

Type in the following program and run it.

```
NEW
10 FOR X=0 TO 10
20 PRINT X
30 NEXT X
40 END
```

The computer displayed the numbers 0 through 10 because it was told to repeat or "loop" 11 times through instructions in lines 10 through 30. Let's take a closer look at the program listing.

The FOR command in line 10 marks the beginning of the loop. It also sets a range of values (0 through 10) for the variable *X*.

Line 20 tells the computer to display whatever value is currently stored with variable *X*. For example, the first time through the loop the value of *X* is 0.

The NEXT command in line 30 tells the computer to assign the next highest value of *X*. In this case, 1. If the value of *X* is less than the final value (10), the computer returns to the FOR statement in line 10 and begins the loop again with the new value. But when *X* reaches the final value, the computer proceeds to the next line statement which, in this case, ends the program.

In this program, the value of *X* increased by 1 each time. To increase the value by 2, 3, or any other increment, you can use a STEP command. For example, change line 10 of the program to: 10 FOR X= 0 TO 10 STEP 2. Run the program again. The computer will display the numbers 0 2 4 6 8 10.

The STEP command also can be used to decrease the value of the variable, thereby making the computer count backward in an assigned increment. For example, change line 10 to: 10 FOR X=10 TO 0 STEP -2 and run the program. The computer will display the numbers 10 8 6 4 2 0 in that order.

Besides counting, FOR...NEXT loops are also useful for forcing the computer to pause while a message or picture is displayed on the screen. (The FOR...NEXT loop is then called a *delay loop*.) The following program demonstrates how a delay loop works.

```
NEW
10 PRINT "HELLO"
20 FOR X=1 TO 1000
30 NEXT X
40 PRINT "GOODBYE"
50 END
```

Enter and run the program. Line 10 displays the message HELLO on the screen. The FOR...NEXT loop in lines 20 and 30 tells the computer to "delay" one second by counting from 1 to 1000 before going on to the next line. (It takes the average microcomputer about a second to count from one to one thousand.) While the computer is counting, the message is left undisturbed on the screen. When the computer has finished the loop, it continues to the next line. In this case, it displays GOODBYE and then ends the program.

USING THE TASK CARDS

Following are the teaching objectives and answers for each of the four BASIC task cards.

Beginner #5: Students practice debugging PRINT statements that display lines of poetry.

Answers to Activity 1:

```
PRINT "ONCE I RODE ON THREE WHEELS."
PRINT "NOW, I RIDE ON TWO."
PRINT "I TRIED TO RIDE ON ONE WHEEL,"
PRINT "BUT THAT I CANNOT DO."
```

Answers to Activity 2 will vary.

Beginner #6: Students debug PRINT statements to solve math story problems. *Answers: (a)* PRINT 1986-

(continued on page 56)

CUT OUT AND LAMINATE

5

BASIC TASK CARD

BEGINNER

BUG HUNT

ACTIVITY 1

Each PRINT statement below is supposed to display a line in a poem. However, each statement has a bug in it. Find and fix the bugs and write the corrected statements on a piece of paper.

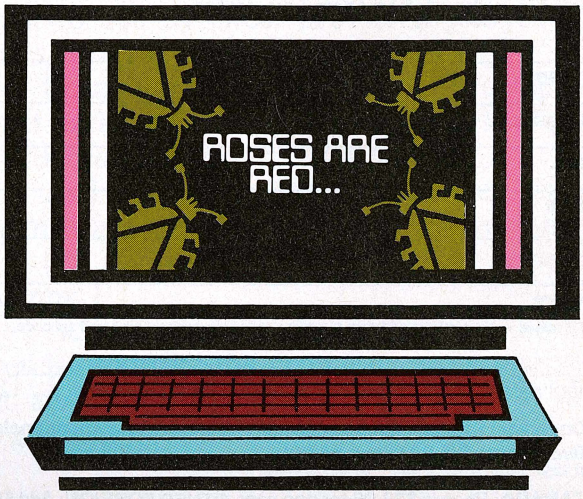
One at a time, type each corrected PRINT statement into the computer and press ENTER or RETURN. When you are done, you should see four lines of a poem on your computer screen. Can you recite the poem?

PRNT "ONCE I RODE ON THREE WHEELS."
"NOW I RIDE ON TWO." PRINT
TYPE "I TRIED TO RIDE ON ONE WHEEL,"
PRINT BUT THAT I CANNOT DO!

ANSWERS: Check with your teacher.

ACTIVITY 2

Use PRINT statements to write a "buggy" poem like the one in Activity 1. Challenge a friend to find and fix the bugs you planted.



6

BASIC TASK CARD

BEGINNER

CRACKERJACK FACTS

Directions: *Read the story about CrackerJack facts. Then read the questions that follow it. To find the answers to the questions, debug the* PRINT *statements and enter them into the computer. Write the answers on a piece of paper.*

CrackerJack Facts

In 1893, F. W. Rueckheim and his brother Lewis invented a new snack. They made it by mixing peanuts, molasses, and popcorn together. It was sold at the Chicago World Columbian Exposition. A salesperson tasted it and exclaimed, "It's a crackerjack!" Why he called it that we don't know. But from that point on, the treat was named CrackerJack.

The popcorn for CrackerJack was once made by the world's largest popcorn popper. It was called Big Wally. Big Wally popped 3,000 pounds of corn per hour. Today, popcorn poppers at the CrackerJack factory pop 875 pounds of corn per hour.

a. For how many years has CrackerJack been made? Answer: PRONT 1986-1893.

b. If Big Wally popped corn for 8 hours per day, how many pounds of popcorn did the machine make in a day? Answer: 3000*8 PRINT.

c. How many pounds of popcorn could Big Wally pop in a week (7 days)? Answer: PRINT 7 X 8 X 3000.

d. How many pounds of corn can today's poppers pop in an 8-hour day? Answer: PRINT "875*8".

e. How many of today's poppers would it take to pop as much corn per hour as Big Wally did? DIVIDE 3000/875.

ANSWERS: Check with your teacher.

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BASIC CHALLENGE CARDS

1893, *93; (b)* PRINT 3000*8, *24,000; (c)* PRINT 7*8*3000, *168,000; (d)* PRINT 875*8, *7000; (e)* PRINT 3000/875, *3.43.*

Intermediate #5: Students make a counting program more efficient by replacing five PRINT statements with a FOR...NEXT loop. They then add other counting features, including delay loops, to the program.

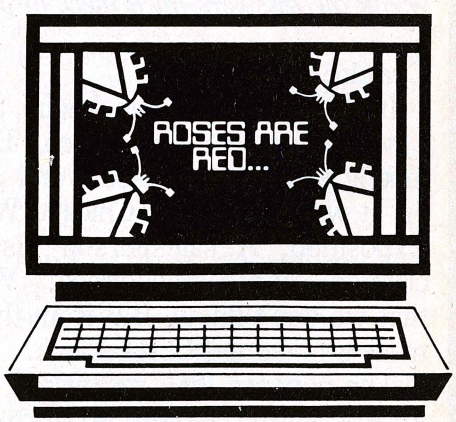
Answer to Activity 1:

```
NEW
10 FOR X = 1 TO 5
20 PRINT X
30 NEXT X
40 END
```

Answers to Activity 2: (a) 10 FOR X = 0 TO 100*; (b)* 10 FOR X = 0 TO 100 STEP 2*; (c)* 10 FOR X = 100 TO 0 STEP -2; *(d)* 25 PRINT "OOPS!"*; (e)* 27 FOR Y = 1 TO 1000, 28 NEXT Y.

Intermediate #6: Students complete and enhance a program that uses FOR...NEXT to make Jack's beanstalk grow up and off the screen. They also create their own program that uses a FOR..NEXT loop. *Answers: (1)* 40 FOR X = 1 TO 10, 120 NEXT X. *(Variables may vary.); (2)* 115 FOR Y = 1 TO 1000, 116 NEXT Y*; (3) Answers will vary.*

Sandra Markle is the author of several computer books for children. Her most recent book, which she coauthored with her husband William Markle, is *In Search of Graphics* (Lothrop, Lee & Shepard; New York, NY).



CUT OUT AND LAMINATE

5

BASIC TASK CARD

INTERMEDIATE

LITTLE CHANGES

ACTIVITY 1

The program below uses PRINT statements to make the computer display the numbers 1 through 5. Rewrite the program using a FOR . . . NEXT loop to make the computer do the same job. To see if your new program works, type it into the computer and run it.

```
NEW
10 PRINT "1"
20 PRINT "2"
30 PRINT "3"
40 PRINT "4"
50 PRINT "5"
60 END
```

ACTIVITY 2

Use your FOR . . . NEXT counting program from Activity 1 to do the following:

a. Change one line in the program to make the computer display the numbers 0 to 100. *(To see if your change works, run the program.)*

b. Change one line to make the computer count to 100 by twos. *(To see if your change works, run the program.)*

c. Change one line to make the computer count backward from 100 to 0 by twos. *(To see if your change works, run the program.)*

d. Add a line to make the computer display the message "OOPS!" after it displays each number. *(To see if your program works, run the program.)*

e. Add two lines to the program in the last exercise to make the computer pause one second after it displays each OOPS! *(To see if your program works, run the program.)*

ANSWERS: Check with your teacher.

6

BASIC TASK CARD

INTERMEDIATE

JACK'S BEANSTALK

Remember the story *Jack and the Beanstalk*? Instead of selling the family cow, Jack trades it for a handful of "magical" bean seeds. Angry at what he has done, Jack's mother throws the seeds out the window. It turns out that the seeds really are magical and they begin to grow.

ACTIVITY 1

The program at right is supposed to make Jack's beanstalk grow right off the screen, but it isn't complete. Use the REM messages as clues to fill in the rest of the program.

```
NEW
10 PRINT "          * *          "
20 PRINT "          <  >         "
30 PRINT "          * *          "
40 REM START LOOP FOR REPEATING LINES 50-110
   10 TIMES
50 PRINT "                HH               "
60 PRINT "          ----  HH               "
70 PRINT "          <     >-- HH           "
80 PRINT "          ----  HH               "
90 PRINT "                HH    ----       "
100 PRINT "               HH--<      >     "
110 PRINT "               HH    ----       "
120 REM ASSIGN "NEXT" COMMAND TO VARIABLE
130 END
```

ACTIVITY 2

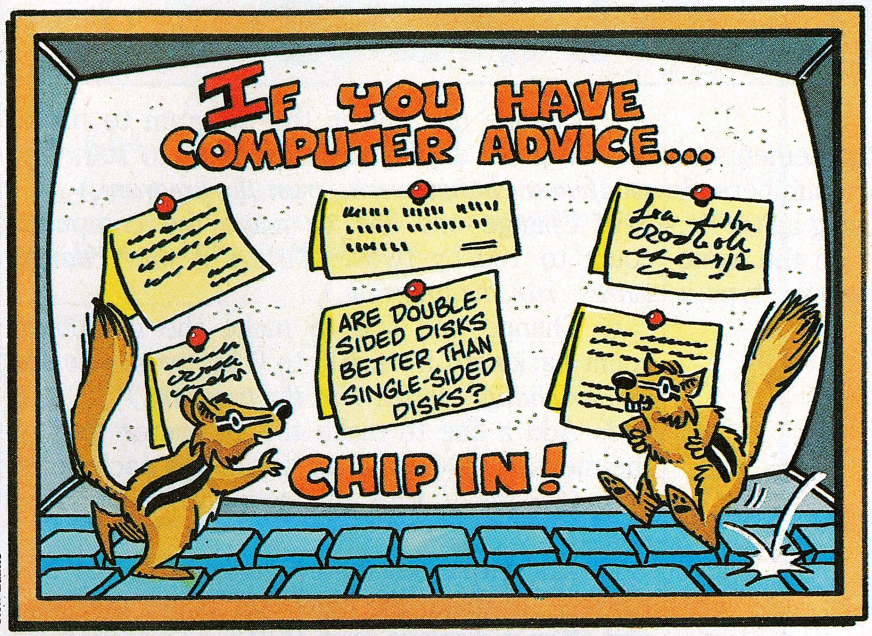
Add another FOR . . . NEXT loop in the beanstalk program to make the plant grow slowly.

ACTIVITY 3

Create a program that will draw a balloon on a string. Include a FOR . . . NEXT loop that sends the balloon flying up, up, and away.

MICRO IDEAS

QUICK COMPUTER TIPS AND ACTIVITIES



Ron Zalme

SHARE COMPUTER ADVICE ON THIS BULLETIN BOARD

"Are double-sided disks better than single-sided disks?" "Can someone write a short BASIC program that will average my math grades?" "Does anyone know a good data base program for the TRS-80 computer?'

Trouble-shooting hackers and trivia buffs can "chip in" to answer these and other student questions with the help of the bulletin board display above. To make the display, cut out a monitor frame, keyboard, and two chipmunks from colored paper, and arrange them on a bulletin board to resemble the illustration above. At the top of the display, tack up paper letters that read: *If You Have Computer Advice. . . .* At the bottom of the display, tack up: *Chip In!*

Next, have students fold sheets of colored paper in half to form "question cards." As computer problems arise, have kids write them on the outside of a question card and post the card in the center of the board.

Encourage all children to read the questions on the cards displayed. If they have advice to contribute to a particular question, they should write it inside the question card and initial it (in case the questioner seeks more in-depth advice from the student "adviser"). Also, be sure to make it clear that more than one student is welcome to offer advice on a question.

Add a few of your own review questions or challenges to keep students on their toes! At the end of each week, conduct a group discussion to ensure that all questions receive satisfactory solutions.

Sylvia Foust
Long Beach, NC

ENCOURAGE GIRLS TO USE COMPUTERS

If a lot of the girls in your school seem disinterested in computers, provide them with a few of these motivating experiences:

- Once a month, conduct a "Girls Only Day" when only girls are allowed to use the computers. (Some girls say they don't use computers much because the boys "hog" them.)
- Provide more situations in which female teachers act as role models at the computer. For example, make sure female as well as male teachers give programming and software demonstrations to classes.
- Invite career women to school to discuss how they use computers in their work.

Craig Dickinson
Orono, ME

ERASE YOUR PENCIL PROBLEMS

There are many times when a pencil is needed at a computer station. Unfortunately, no matter where a student puts the pencil, it either ends up under the computer or on the floor, awaiting "death by sneaker."

Our solution cost us pennies. We cut a one-inch diameter plastic water pipe (which may be called PVC in hardware stores) into two-inch lengths. We taped one end of each piece closed with gray duct tape and then taped one pipe piece, open end up, to the side of each computer station. The result? Durable pencil holders that never disappear!

George H. Pitlik
Spring, TX

MONTHS-OF-THE-YEAR DATA BASE

From January to December, the months of the year are chock-full of birthdays, holidays, and special events.

You can teach students what's in store for the coming year and some interesting facts about the months by creating a "Months-of-the-Year" data base file. The data base will contain information on each month: its name, the number of days in it, its season, and the exact dates of holidays, students' birthdays, and school events that fall within the month.

You can use just about any simple data base program for this activity; just follow these four easy steps.

1. Create a MONTHS Data File

Boot your data base program into your computer. Design a file called MONTHS with the following fields, or categories. Save the file on disk or cassette.

MONTH:
NO. OF DAYS:
SEASONS:
HOLIDAYS:
SCHOOL EVENTS:
STUDENT BIRTHDAYS:
ADDITIONAL FACTS:

(Some programs allow only a limited number of characters per field. If you are using one of these programs, abbreviate field names.)

MICRO IDEAS

2. Research the Months

Divide the class into 12 groups. Assign a different month to each group. Print out 12 copies of the MONTHS file and pass out one copy per group.

Have groups use calendars, school bulletins, a current almanac, and guides to monthly holidays as resources to fill in all the fields in the MONTHS file, except BIRTHDAYS.

For HOLIDAYS and SPECIAL EVENTS with specific dates, write the name of the holiday or event first, followed by the date in parentheses. For example:

HOLIDAYS: VALENTINE'S DAY (14).

Here is a sample record for March.

MONTH: MARCH
NO. OF DAYS: 31
SEASONS: WINTER, SPRING
HOLIDAYS: ST. PATRICK'S DAY (17), SPRING BEGINS (20), EASTER (30)
SCHOOL EVENTS: PARENT'S DAY (13), SPRING BREAK (14-22)
STUDENT BIRTHDAYS:
ADDITIONAL FACTS: A POPULAR SAYING IS, "MARCH COMES IN LIKE A LION AND GOES OUT LIKE A LAMB." ALSO, "BEWARE THE IDES OF MARCH " (MARCH 15), WHICH IS THE DAY JULIUS CAESAR WAS KILLED.

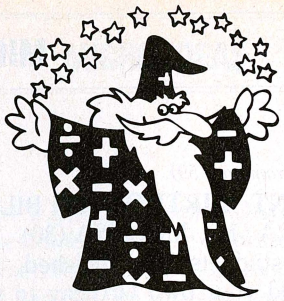
3. Add the Information to the Data File

Boot your data base program, call up the MONTHS file, and have groups add their information to the file. After everyone has finished, there will be 12 records in the MONTHS file, one for each month of the year.

Check students' records for misspellings and factual errors. Have children correct their mistakes.

Instruct kids to take turns entering their birthdays into the records. To do this, they will have to call up the record for the appropriate month. Then, they will have to insert their name next to the STUDENT BIRTHDAYS field, followed by the date in parentheses. Separate birthdays by a comma. For example:

(continued)



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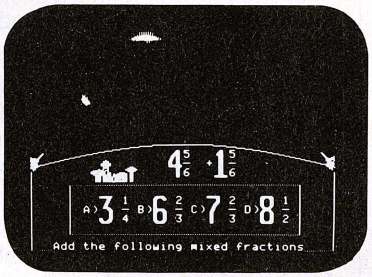

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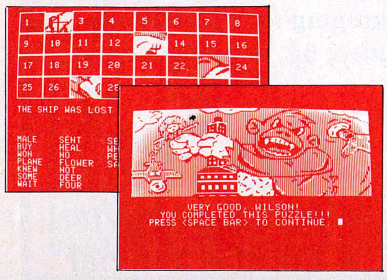

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(continued from page 59)

STUDENT BIRTHDAYS: BILLY (9), NORA (12), MELISSA (30).

After students have finished, secretly add your own birthday to the file.

4. Search for Specific Information

Show kids how to retrieve information using your data base program. Then have students use the MONTHS data base to find out the following information.

- Find the longest months of the year. (Hint: The longest months have 31 days.)
- Find all the summer months.
- Find your teacher's birthday.
- According to an old saying, oysters should only be eaten during months with an "r" in them. (The saying was once a way to warn people that summer oysters spoil easily, but it no longer applies, due to modern refrigeration methods.) Find all the months with an "r" in them.
- In what month is Easter this year?
- When is the last day of school?
- Is there any month in which nobody has a birthday?

Encourage students to add more fields to the MONTHS data base, including zodiac signs, the original names of the months, dates on which a full moon occurs, historic events, and so on.

Lorraine Hopping

WRITE A BIOGRAPHY OF MARTIN LUTHER KING, JR.

It's official: January 15 is a newly designated national holiday in celebration of Martin Luther King, Jr.'s birthday.

In honor of the occasion, we've put together a writing unit on the famous civil rights leader. In the unit, students research events in King's life and use a word processing program to write a short biography of him.

Children can use any word processing program to do this activity. They should know how to call up and save files, move the cursor, and insert and delete text.

Research King's Life

Objective: Students research basic facts about Martin Luther King, Jr.'s life. They also learn what type of information to include in a biography.

Preparation: Cut out and laminate the Write-a-Biography task card on the next page.

Activity: Discuss with the class what a biography is. (A factual account, usually written, of a person's life.) Divide students into pairs and explain that each pair is going to write a biography of Martin Luther King, Jr.

Instruct student pairs to research King's life. They should look for information such as when and where he was born and died, what his childhood was like, great achievements in his life, and the names of his family members.

Load your word processing program into the computer and have students complete the Write-a-Biography task card (next page). The task card asks students to insert answers to questions about King's life. (Students will have to do additional research if they don't know the answer to a question.) The completed file will later serve as an outline for their biography.

Following is an example of a completed file. Additional or different information is acceptable for questions 3, 6, 7, and 9.

1. When and where was Martin Luther King, Jr. born? King was born on January 15, 1929 in Atlanta, Georgia.

2. What were the names of King's parents? How many brothers and sisters did he have? What were their names? Were they older or younger? King's father was Reverend Martin Luther King, Sr., and his mother was Alberta Williams King. King had an older sister named Willie Christine and a younger brother named Alfred Daniel.

3. Describe an event in King's boyhood that influenced his later life. One day, young Martin and his father walked into a shoe store. When they sat down, the sales clerk told them to move to the back of the store. The clerk explained that he could serve black people only if they sat in the back. Rather than move, Martin's father took him by the hand and stormed out without buying any

Circle 22 on Reader Service Card.

shoes. Martin remembered the event as an example of how blacks were treated unfairly.

4. What did King do for a living? He was a minister in the Baptist church.

5. Whom did King marry? How many children did the Kings have and what were their names? He married Coretta Scott. They had four children: Yolanda Denise, Martin III, Dexter Scott, and Bernice Albertine.

6. Tell about three great achievements or moments in King's life. In 1955, King led a boycott of public buses in protest of unfair laws against black passengers. The successful boycott showed people that rights could be won through nonviolent protest. In 1963, he led a successful march in Washington, DC, to help the civil rights cause. In 1964, King won the Nobel Peace Prize.

7. Describe King's dream for the future of the world as he explained it in his "I Have a Dream" speech. How did he think it could be achieved? King dreamed that people of all races, religions, and social classes would live together in peace, and that they would all be given equal opportunity to fulfill their dreams for a happy life. He believed that such freedom and justice could be achieved through nonviolent protest.

8. When, where, and how did King die? King was shot in Memphis, Tennessee, on April 4, 1968.

9. Add any other information on King's life that you think is important. King united many groups in his campaign against poverty. Besides blacks, he called together American Indians, Spanish-speaking Americans, and others. He planned a Poor People's March on Washington, DC, for 1968 but did not live to lead it.

Write the Biography

Objective: Students write a biography based on the outline they compiled in the previous activity.

Preparation: Print out students' outlines and check for spelling errors, missing information, factual errors, and inappropriate responses to the questions. Pass back the corrected outlines.

Load the word processing program into the computer.

Activity: Have students call up their outlines and make the changes and corrections that you indicated.

They are now ready to write the biography, using their answers to the questions as a first draft. They can put the information in any order by moving blocks of text. They can also insert and delete text to make the biography read more smoothly.

Encourage students to add more information to the biography. They might even wish to add quotations from King's speeches.

Lorraine Hopping

CUT OUT AND LAMINATE

HOLIDAY TASK CARD

Write a Biography

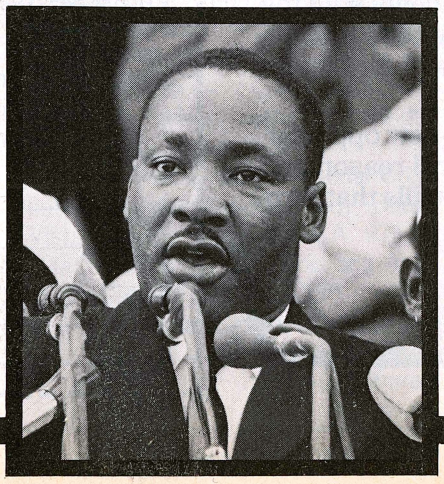
DIRECTIONS: Load the word processing program into the computer. Type in answers to the following questions. Use complete sentences. Save the file on disk or cassette. Use your first name and last initial as a filename. (For example: JENNYP.)

1. When and where was Martin Luther King, Jr. born?

2. What were the names of King's parents? How many brothers and sisters did he have? What were their names? Were they older or younger?

3. Describe an event in King's boyhood that influenced his later life.

4. What did King do for a living?



upi

5. Whom did King marry? How many children did the Kings have and what were their names?

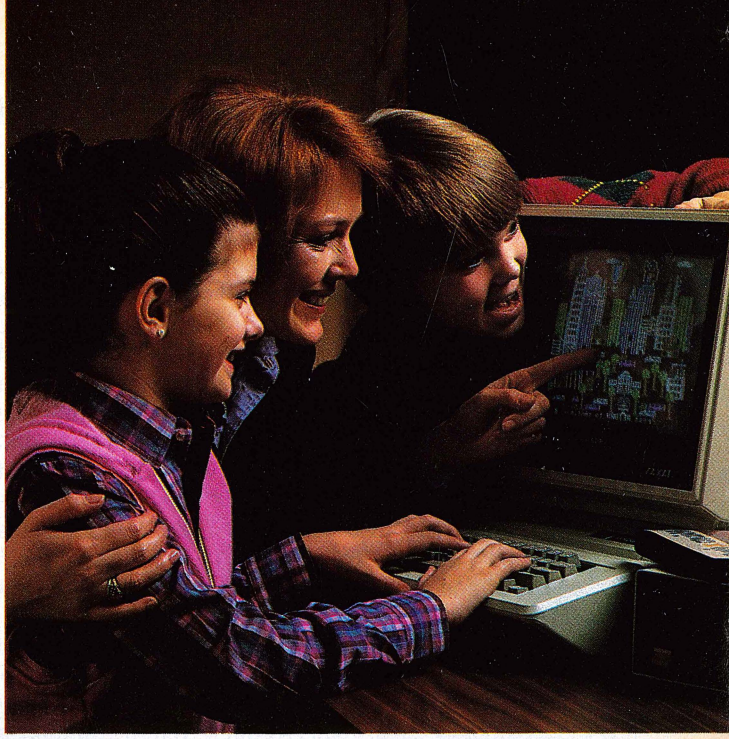
6. Tell about three great achievements or moments in King's life.

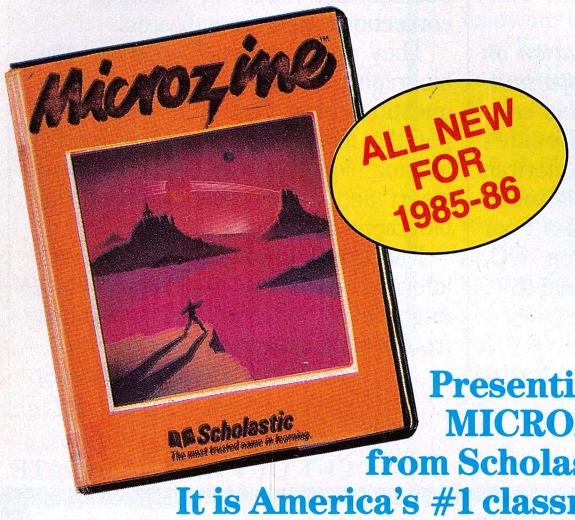
7. Describe King's dream for the future of the world as he described in his "I Have a Dream" speech. How did he think it could be achieved?

8. When, where, and how did King die?

9. Add any other information on King's life that you think is important.

Give your students the educational advantage of a lifetime.





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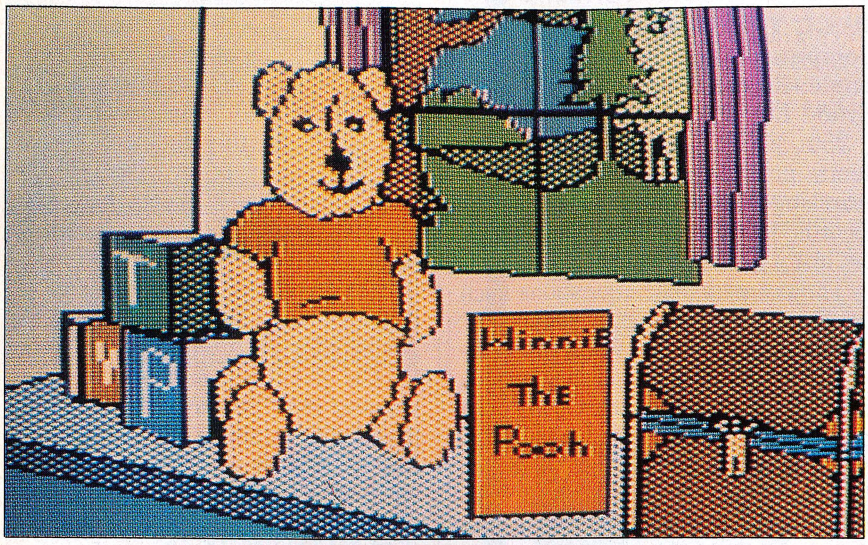

Players match objects with owners in this Winnie the Pooh *adventure.*

WINNIE THE POOH IN THE HUNDRED ACRE WOOD

Computer: Apple II series; Commodore 64; IBM PC,PCjr (available soon)
Topic: Map reading skills
Grade Level: 2 – 8

Each resident of the Hundred Acre Wood — Pooh, Piglet, Kanga, Roo, Eeyore, Owl, Rabbit, and Christopher Robin — has lost something valuable. Your students must travel through the forest in search of these missing objects, decide to whom each belongs, and return them to the owners. To win the game, students must return all the objects to the rightful owners before the blustery wind blows everything to a new location.

The program's graphics and sound are highly motivating. The program appeals to children of many ages. I find that younger children use trial and error to solve the problems presented by the program, while older children get best results by employing logical thinking skills.

The documentation includes a short Winnie the Pooh story that sets the scene for the adventure and captures children's interest, clearly written directions for running the program, and eight follow-up activity ideas. It also includes a student progress chart, two BASIC programming challenge activities, a map of the Hundred Acre Wood, four worksheets that emphasize map skills, five comic books full of computer stories, and a poster that illustrates and defines computer terms.

I suggest laminating the Hundred Acre Wood map so children can mark locations on it as they play the game. Have children work in pairs or small groups to practice cooperation skills.

Winnie the Pooh in the Hundred Acre Wood is a great follow-up activity to a map skills unit. It also motivates kids to read Winnie the Pooh stories and write their own adventure tales. Its real value lies in the interrelation of the skills it teaches and the ease with which kids can work together to solve problems.

All my students (in various grade levels) loved this program! The older children (in fifth and sixth grades) were more motivated by it and had a longer attention span than my primary students. I even used the program with junior and senior high school students.

Price: $49.95
Policy: Backup included; 30-day money-back guarantee
Source: Walt Disney Personal Computer Software, 500 South Buena Vista Street, Burbank, CA 91521; 800/423-2555; In California and Alaska, call collect 818/840-1726

Adrianne Geszler, The Moreland School, Shaker Heights, OH

(continued)

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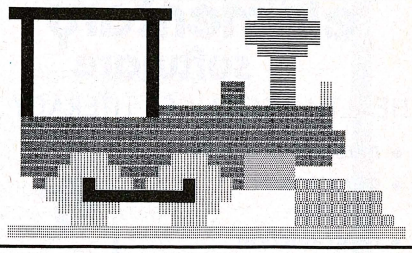

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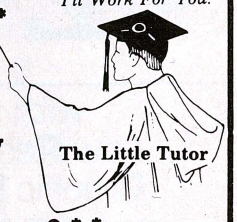

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SOFTWARE SHOWCASE

(continued from page 63)

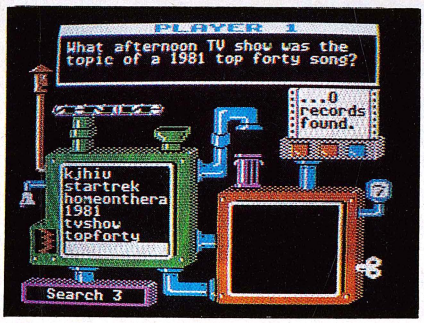
MECC TRIVIA MACHINE

Computer: Apple II series
Topic: Research skills
Grade Level: 4 – 9

With *MECC Trivia Machine*, students practice research skills by searching through a data base of 400 records to answer questions about the history of rock 'n roll.

The program poses questions such as "Who won the 1982 Grammy for 'Best Female Pop Vocal Performance'?" Students use key words from the question to search the data base for answers. In this case, students who ask the program to search for the words "Grammy" and "Female" will find seven records. If students narrow their search by asking for records with "Grammy," "Female," "Pop," and "1982," they will eventually find the answer (*Melissa Manchester*).

The game's scoring system encourages efficient searches by "charging" students $10 per search, $3 for each word used in the search, and $1 for each record the program finds during the search. Students pay for searches with a $200 stipend that they receive before each question.



In MECC Trivia Machine, *students use a data base to find answers.*

If players narrow their search down to two or three records, a multiple choice menu displays the possible answers. Players are penalized $30 for choosing an incorrect answer.

After each search, the program tells how much money players have used and how much they have left. This profit carries over to the next round.

The game can be played by one to four students, or teams of students. Students can escape from the program at any time.

The documentation is outstanding. It includes thorough explanations for the teacher and supplementary reproducibles for the students. Best of all, it teaches general information about how to use a data base that students can apply to all areas of the curriculum.

MECC Trivia Machine does an excellent job of showing students how to search a computer data base. It also gives students practice with some of the "pitfalls" of using a data base. For example, they discover that you don't find what you want without a specific-enough search technique.

The only drawback is the time needed to search the data base. Each search takes almost a minute. If teachers plan to use the program as a group activity, they should have activities that students can work on while their classmates are searching the data base.

Price: $49
Policy: Backup included; 30-day preview
Source: Minnesota Educational Computing Corporation (MECC), 3490 Lexington Avenue North, Saint Paul, MN 55126; 612/481-3500

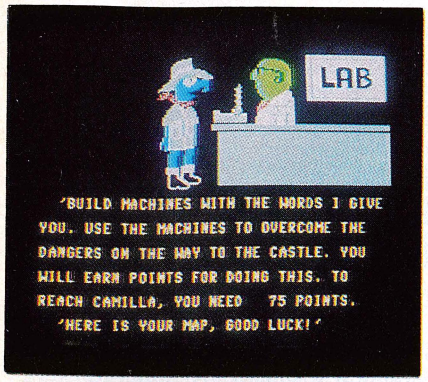
Beth Lazerick, Computer Coordinator
The Dalton School, New York, NY

THE GREAT GONZO IN WORDRIDER

Computer: Commodore 64 (joystick required), Apple II series
Topic: Language arts
Grade Level: 2 – 6

The muppet character, Gonzo, must rescue Camilla, a fair-feathered fowl, from the Swedish Chef who lives in the castle. Players help Gonzo get to the castle by building machines (with words) that will help overcome the dangers Gonzo encounters on the way.

That's the object of *The Great Gonzo in Wordrider*, a game that teaches students to associate written words and phrases with their meaning. By making different combinations of words, children "build" a variety of machines on the screen to help Gonzo reach his goal. Gonzo's ma-



Children use words to help Gonzo.

chines can travel in different ways and use different attachments, but students can only choose one means of travel and one attachment for each place Gonzo visits on the way to the castle.

To successfully cross each place or "hazard" that Gonzo encounters, children must choose words whose meaning correspond to the method of movement needed by a vehicle (flying, diving, gliding, climbing, rolling, or walking) and the kind of attachment (hole maker, horn blower, light maker, water squirter, stopper, bumper, or catcher) that would be helpful. For example, a gliding vehicle with a light maker attachment might help Gonzo navigate the dark Carlsbird Caverns. On the other hand, Gonzo wouldn't get anywhere on the New Yolk City streets with a diving vehicle that squirts water.

Once players have chosen the means of travel and the kind of attachment for their vehicle, they use a joystick or keyboard to guide it and Gonzo across the hazard. By pressing the joystick button or a key, they can make the attachment on the vehicle work. If they have chosen the correct attachment, players can stop obstacles and earn extra points. For example, Gonzo can plug up the geysers in Yellowyolk National Park if he has a stopper, or he can catch sharks and moregg eels in the Egglantic Ocean if he has a catcher.

Players use a map to plan in advance their route to the castle. They must choose Gonzo's method of motion and attachment for each hazard carefully, because each one can be

(continued)

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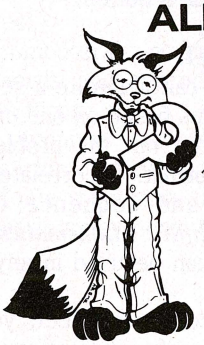

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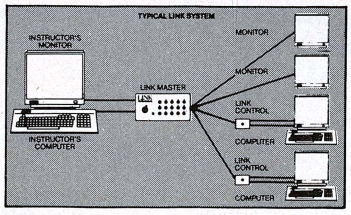

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SOFTWARE SHOWCASE

(continued from page 65)

used only once. For example, if kids use the climbing mechanism before Gonzo reaches the Hen-a-layin' Mountains, Gonzo may not be able to get across.

Twenty-five points are awarded each time Gonzo crosses a hazard. Once players earn 50 points, they can return to the Supply Depot and buy attachments and means of travel for Gonzo's vehicle to replace the ones that they have used previously. If players accumulate 75 points, Gonzo can get past the troll in the castle and rescue Camilla.

The Great Gonzo in Wordrider is fun, interesting, and educational. The documentation includes a humorous storybook about Gonzo's adventures as well as thorough operating instructions for the game. The game's use of words to construct a machine that is appropriate to the terrain makes it a good thinking and planning tool. Skill level is challenging, but not impossible.

Price: $34.95 for Apple; $29.95 for Commodore 64
Policy: $5 replacement after 30 days; 40-percent discount for educators on first copy.
Source: Simon & Schuster, Inc., 1230 Avenue of the Americas, New York, NY 10020; 800/223-2336.

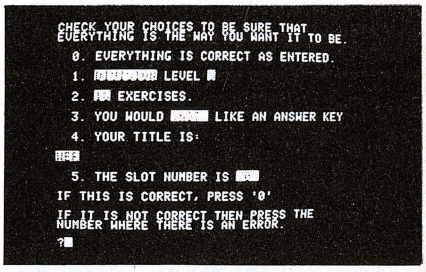
Philip Ingber
District Computer Coordinator
Nyack Public Schools, Nyack,NY

MATHSHEET

Computer: Commodore 64, Apple II series (printer required)
Topic: Math
Grade Level: 1 – 8

Mathsheet can generate a series of math problems based on one or more skills and print out the problems in worksheet format. It correlates with the scope and sequence of the *Houghton Mifflin Mathematics 1 – 8* series, but can be used in any math classroom.

To produce a worksheet, you design the type of problems you want by selecting descriptions from four different on-screen menus. You must also indicate the number of problems you would like to appear on the sheet. The program then uses the computer's ability to generate random numbers to produce a worksheet based on your specifications.



Design your own math worksheets.

Options include the ability to print answers to the exercises at the end of the worksheet or on a separate page, and to print out a set of worksheets based on the same skill but with a different set of exercises for each student.

Worksheets generated by *Mathsheet* can drill students in any of the four basic operations (addition, subtraction, multiplication, and division). For each operation, teachers choose from between 15 and 18 levels of difficulty. Teachers can specify both the operation and level of difficulty for each row of problems on a sheet, so a single worksheet can provide a variety of problems. Unfortunately, exercises to drill decimals and fractions are not included.

The documentation is brief, but clear. It includes material on how the program correlates with the skill levels of the Houghton Mifflin math series. All the information you need to run the program is provided on the screen.

Mathsheet is appropriate for any math teacher. It is flexible and easy to use. Considering the amount of time and energy it saves when constructing worksheets, the program is a good investment for most math teachers.

Price: $90
Policy: Backup included; 30-day preview
Source: Houghton Mifflin Co., One Beacon Street, Boston, MA 02108; 617/725-5000

Sharon Wright, former teacher
Corte Madera School
Portola Valley, CA

SOFTWARE SHOWCASE

PUZZLE MASTER

Computer: TRS-80 Models III,4 (requires two disk drives and an 80-column printer)
Topic: Teacher utility

Puzzle Master allows you to create individualized word puzzles from your own word lists. Students can solve the puzzles on the computer screen or you can have the puzzles printed on paper. The program also prints out answer keys.

Teachers can choose from a variety of puzzles: a crossword puzzle, three kinds of wordfind puzzles, two kinds of anagram puzzles, and a word-guess game. *Puzzle Master* can create any of the puzzles from one word list. Word lists can be edited and saved on a separate disk.

As a program for generating puzzles, this utility is great. Not only will the program take care of the time-consuming job of generating a crossword puzzle or word search, but it generates worksheets with spaces for students to record their answers.

The documentation is extensive and has an index. Best of all, it summarizes important features of TRSDOS — the TRS-80 operating system. A copy of TRSDOS is included on the *Puzzle Master* disk. TRSDOS helps you perform some operations that are helpful for using this program, such as making copies of disks, obtaining a list of files currently on disks, and deleting files. Because the program is complicated, teachers will have to devote a couple of hours to learning how to use it.

While the program offers the option of solving puzzles on-screen, my students preferred working on paper because it saves time. When filling in a student's answer on the screen, the program works very slowly and rebuilds puzzles from scratch, line by line, each time a new answer is entered.

Price: $89
Policy: Backup can be made from original; 30-day preview
Source: Shenandoah Software, P.O. Box 776, Harrisonburg, VA 22801; 703/433-9485

Craig Dickinson, Computer Teacher
Asa Adams School, Orono, ME ■

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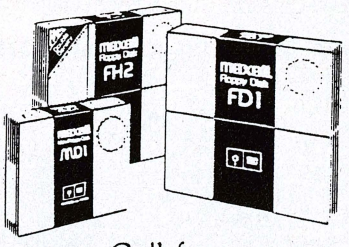

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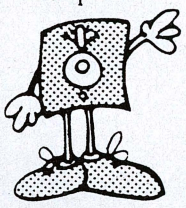

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ANSWERS TO "MICRO TIMES" (page 33)

Computers in the Future

Here are some of the computer situations that appeared in the diary entry that may possibly occur in the future:

- Civilians ride space shuttles on an regular basis;
- There are factories in space;
- Home computers are fairly common and include access to a comprehensive data base;
- Data bases include sounds and pictures;
- Computers can understand spoken words and reproduce them in written form;
- Computers can translate sentences from one language to another;
- Home robots are fairly common and can do many household chores:

Bug Buster

```
TO P
    HIDETURTLE
    FORWARD 50
    REPEAT 3 [RIGHT 90 FD 30]
END
```

Answers to the second part of Bug Busters will vary.

Micro Puzzle

1. Debug; 2. Keyboard; 3. Chip; 4. Micro; 5. Robot; 6. RAM.

CONVERSION CHART

HOW TO CONVERT T&C PROGRAMS TO OTHER MACHINES

The program listing that appears in January's "Program of the Month" column can be used on Apple computers only. Follow this conversion chart to adapt the listing for use on other computer brands. For more details on how to use specific commands, refer to your user's manual.

PROGRAM OF THE MONTH: *Emergency!* **page 48 (Apple)**

Atari 400, 800, 800XL

1. Change line 20 to: 20 PRINT CHR$(125):CLR
2. Add these lines:

25 DIM FD$(10),PD$(10),AM$(10),DO$(10)
26 DIM MD$(10),NE$(10),FI$(25),Z$(1),A$(2),P$(25)

3. Change HOME to PRINT CHR$(125) in lines 300, 420, 530, 650, 770, 900, 1020, 1150, and 1250.

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR$(147):CLR
2. Change HOME to PRINT CHR$(147) in lines 300, 420, 530, 650, 770, 900, 1020, 1150, and 1250.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS: CLEAR 5000
2. Change HOME to CLS in lines 300, 420, 530, 650, 770, 900, 1020, 1150, and 1250.
3. Change "PRESS RETURN" to "PRESS ENTER" in lines 150, 170, 190, 210, 230, 250, 280, 290, 410, 520, 640, 760, 890, 1010, 1140, 1240, 2020.

CORRECTION: *Easy Draw*

Several lines of the TRS-80 Model III version of *Easy Draw* (October "Creepy Creations," pages 58-59) were inadvertently omitted. Delete program lines 730 through 830 and insert the following lines.

```
730 REM SAVE THE PICTURE ON DISK
740 PRINT@896,CHR$(31);"WHAT DO YOU WANT THE CALL THE
    PICTURE";:INPUT P$
750 IF P$="" THEN PRINT@896,CHR$(31);:GOTO 280
760 PRINT@896,CHR$(31);"IS THE NAME ";P$;" OK (Y/N)";:INPUT A$
770 IF A$="N" OR A$="n" THEN 740
780 IF A$<>"Y" THEN 760
790 PRINT@896,CHR$(31);"SAVING ";P$
800 FOR J=0 TO 13:SC$(J)="":K=15360+64*J
810 FOR I=K TO K+63
820 SC$(J)=SC$(J)+CHR$(PEEK(I))
830 NEXT I,J
840 OPEN "O",1,P$
850 FOR I=0 TO 13:PRINT#1,SC$(I):NEXT I
860 CLOSE 1
870 PRINT@896,CHR$(31);:GOTO 280
880 REM FIND A PICTURE ALREADY SAVED ON DISK
890 PRINT@896,CHR$(31);"WHAT IS THE NAME OF THE
    PICTURE";:INPUT P$
900 IF P$="" THEN PRINT@896,CHR$(31);:GOTO 280
910 PRINT@896,CHR$(31);"IS THE NAME ";P$;" OK (Y/N)";:INPUT A$
920 IF A$="N" OR A$="n" THEN 890
930 IF A$<>"Y" THEN 910
940 PRINT@896,CHR$(31);"FINDING ";P$
950 OPEN "I",1,P$
960 FOR I=0 TO 13:INPUT #1,SC$(I):PRINT@I*64,SC$(I):NEXT I
970 CLOSE 1
980 P=0:H=30:V=42
990 PRINT@896,CHR$(31);
1000 GOTO 280
```

ANSWERS TO POSTER WORKSHEETS

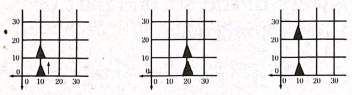
(page 29)

Following is the answer key for the four beginner and intermediate worksheets on the back of this month's poster.

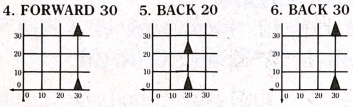
MOVE THE TURTLE

(PART 1)

1. FORWARD 10
2. BACK 10
3. FORWARD 20



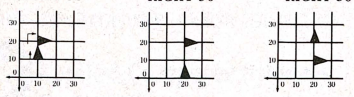
4. FORWARD 30
5. BACK 20
6. BACK 30



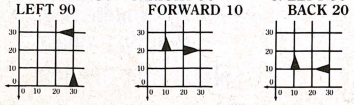
MOVE THE TURTLE

(PART 2)

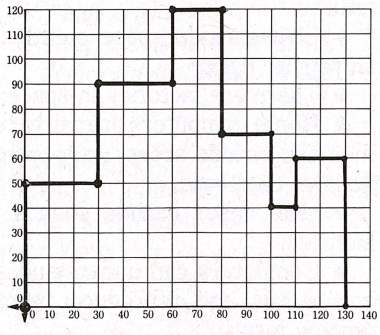
1. FORWARD 10
RIGHT 90
2. FORWARD 20
RIGHT 90
3. BACK 10
RIGHT 90



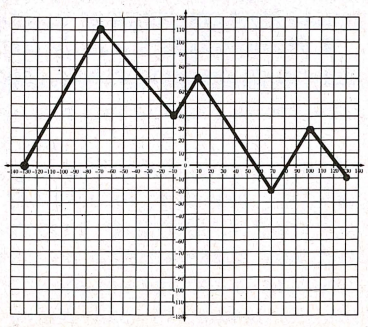
4. FORWARD 30
LEFT 90
5. RIGHT 90
FORWARD 10
6. LEFT 90
BACK 20



MAKE A CITY SKYLINE



MAKE A MOUNTAIN RANGE



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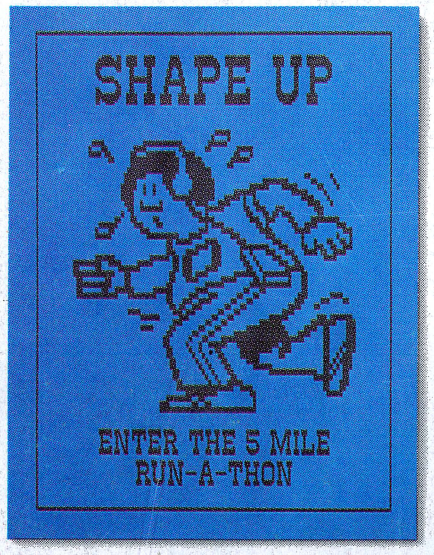

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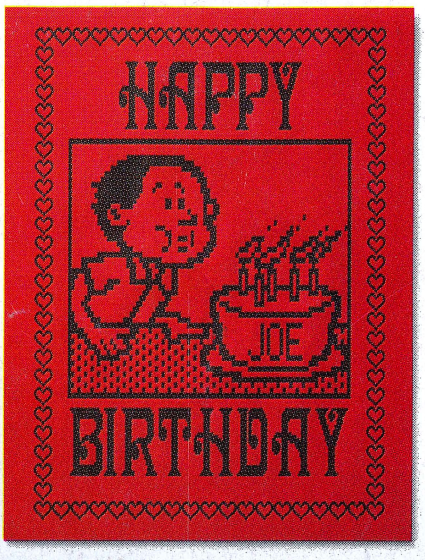

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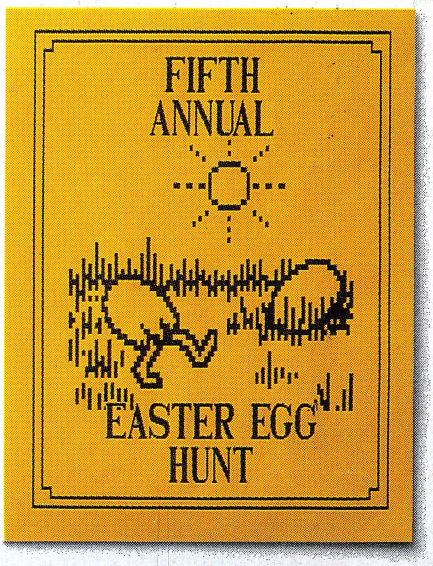

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